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NCIA/ACQ/2020/12985
22 December 2020

To : All Nominated Prospective Bidders

Subject : **AMENDMENT NO. 2 TO THE INVITATION FOR BID NO. IFB-CO-14797-TCS**

'Provision of Transport Core Services (TCS)'
Urgent Requirement (UR), Project Serial 2020/0CM03331

References :
A. Budget Committee Budget Procurement Guidance, document BC-D(2018)0004-FINAL dated 29 January 2018;
B. NCIO Financial Rules and Procedures, document AC/337-D(2016)0014 dated 16 March 2016;
C. Urgent Requirement (UR) ACT/CAPDEV/CAP/TT-2498/SER:NU 0686;
D. NCI Agency Invitation for Bid NCIA/ACQ/2020/7112 dated 30 September 2020;
E. IFB-CO-14797-TCS Bidders' conference (Online Event) held on 12 November 2020;
F. NCI Agency Amendment N˚1 to the Invitation for Bid NCIA/ACQ/2020/12881 dated 29 November 2020.

Prospective Bidders,

1. At Reference (D) your firm was invited to participate in an International Competitive Bidding for the provision of Transport Core Services (TCS).

2. At Reference (F), the NCI Agency issued, through Amendment No. 1 to the Invitation for Bid (IFB), the slides presented during the Bidders' Conference, the List of Participants of the event, the answers to the first set of Clarification Requests received from the Prospective Bidders, as well as the revised version of the Bidding Instructions and the Prospective Contract.

3. The purpose of this Amendment No. 2 to the IFB is to issue the **answers to the follow-up Clarification Requests** received from Prospective Bidders (Attachment (A), CRs A22-A29, T15, T17, T37, T.76, T95-96), and add the site related information to the Prospective Contract (Attachment (B) New Appendix I to SOW). As a direct or indirect result of the Clarification Requests, the below listed IFB parts have been amended and are re-issued in their entirety (Attachment (C)). The changes have been marked in blue.

a. Book II Part II Prospective Contract Special Provisions;
b. Book II Part IV Prospective Contract Statement of Work with its Appendixes.

4. With the exception of the revisions mentioned above, all other IFB documents remain unchanged from their last issued version.

5. Please consider that **Attachment B is not sent with this letter** as the classification of the document is NATO RESTRICTED, thus, to receive a copy of SoW Appendix I by commercial courier interested Bidders shall request this document by filling out and sending the **Certificate of Security Obligation** (Attachment (D)) no later than **6 January 2021**. Bidders are advised that the overall security classification of this IFB Package remains NATO UNCLASSIFIED. However, this document is considered NATO RESTRICTED when SoW Appendix I is included.

6. Bidders are reminded to treat classified material under subject IFB in accordance with the applicable Security regulations. When received by the Bidders, such classified material shall be under their responsibility and Bidders shall be responsible, in accordance with NATO and National Security regulations, for the proper handling, storage and control of this classified material, including any transmission to partners and sub-contractors. Bidders are cautioned that any classified material cannot be transmitted through electronic transmission over the Internet nor published on the Internet.

7. In order to allow the Prospective Bidders sufficient time to receive and review the classified portion of the IFB, and in response to the second Request for Extension received from one of the Participating Nations, the **Bid Closing Date is herewith extended by TWENTY-EIGHT (28) calendar days and is now as follows: 14:00 Hours (Brussels time) on 12 February 2021**.

8. The NCI Agency sole point of contact (POC) for all information concerning this IFB is Ms. Viktorija Navikaitė, who may be reached at Viktorija.Navikaite@ncia.nato.int or IFBCO14797TCS@ncia.nato.int.

ON BEHALF OF DIRECTOR OF ACQUISITION:

Tiziana Pezzi

Digitally signed by Tiziana Pezzi
Date: 2020.12.22 15:45:38 +01'00'

Tiziana Pezzi
Principal Contracting Officer

Attachments:

A) Purchaser's answers to the Clarification Requests (second release)

B) New Appendix I to Book II Part IV (NR)

C) Electronic Soft Copy (PDF) of IFB-CO-14797-TCS Book II Parts II and IV

D) Certificate of Security Obligation

NCIA/ACQ/2020/12985

Distribution List for

IFB-CO-14797-TCS-AMD2

NATO Delegations (Attn: Investment Adviser):

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Slovenia	1
Spain	1
Turkey	1
The United Kingdom	1
The United States of America	1

All Nominated Prospective Bidders 1

BELGIUM

ATOS

Nokia Bell NV

Proximus

Verizon Belgium-Luxemburg

BT Global Services

Colt Technology Services

Eurofiber Belgium

CYPROS C

VAN ROEY AUTOMATION

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Orange Business Services Belgium

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Director, NATO HQ Communications and Information Staff
Attn: Executive Co-ordinator 1

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SACEUREP

Attn: Investment Assistant 1

Strategic Commands (*as applicable to funding source*)

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NATO Agencies (*as applicable*)

NCI Agency:

DACQ (Ms. J. Upton through Ms. S. Carna) 1
Deputy DACQ (Ms. A. Szydelko) 1
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ACQ Contracting Officer (Ms. V. Navikaitė) 1
ACQ ILS (Mr. R. Proietto through Mr. A. Fioravanti) 1
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NATEXs

All NATEXs 1 Each

ANNEX E – CLARIFICATION REQUEST FORM

INVITATION FOR BID
IFB-CO-14797-TCS

CLARIFICATION REQUEST FORM - ADMINISTRATIVE

Release N° 2

ADMINISTRATIVE CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
A.1	Book I, Page I-7 , 1.4.3	Did we understand correctly that the invitation to bid has overall security classification "NATO UNCLASSIFIED" , but the contract will have NATO SECRET clearance ?	As Per Book I Para. 15.2, the security classification of the Prospective Contract is "NATO Unclassified". However, for the purpose of the performance under the Contract, the Contractor will require access to locations, such as sites and headquarters, where classified material and information up to and including "NATO Secret" is handled. Therefore, all personnel employed under this Contract, that will be required to handle classified material and access NATO sites, shall possess, at the time of Contract award, the appropriate personnel clearances up to "NATO Secret" level, confirmed to the Purchaser by the relevant National Security Authority. Similarly, the Contractor shall possess the appropriate Facility Clearance to store the classified material up to the level of "NATO Secret".	**No**

[1] To be completed by the Purchaser: Specify 'YES' if the Amendment to IFB will be required as a direct result of the Clarification Request

ADMINISTRATIVE CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
A.2	Book II Part II Prospective Contract Special Provisions art 18.5	"In case the Contractor fails to meet the Service Request processing timelines during the In Service phase as defined under Article 8.4 above, the Contractor shall pay to the Purchaser the Penalty of ten per cent (10%) of the monthly service rate for all sites of the Contract" - The way the penalty for late delivery on new service request is defined is not alligned to the calculation of late delivery applicable on the basline of the contract. The penalty for new service request is based on the total monthly value of the contract (already delivered services) - while it should be calculated on the total value of the new services. Plesae correct.	Prospective Contract Articles 8 and 18.5 will be removed.	**Yes, Book II Part II SPs Art. 8 & 18.5**
A.3	BOOK I BIDDING INSTRUCTIONS - 1.5.9	The Bidding Instructions contain a conflict with regards to the latest date Bidders can send in Clarification Questions. Can NATO please clarify, what the exact latest date is for sending in Clarification Questions.	As per Book I Para. 2.6.3, additional clarification requests shall arrive not later than fourteen (14) calendar days before the established Bid Closing Date, ie NLT 26 November 2020. Book I Para. 1.5.9 will be corrected to show the following: 'Any question that the potential Bidders would like to have answered after the Bidders' Conference must be submitted in writing within one (1) week after the Bidders' Conference, but not later than fourteen (14) calendar days prior to the Bid closing date, to the IFB Contracting Officer at	**Yes, Book I Para. 1.5.9**

ADMINISTRATIVE CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
			the address mentioned in Para. 1.5.12.1 below.'	
A.4	Annex B-8, Prospective general provisions 2.35 - 2.36	Is NATO agreeable if affiliates (i.e. any entity controlled by, controlling, or under common control of the bidder) are not to be considered subcontractors? This will not change the requirement that each affiliate must be within an eligible NATO Participating Country. If NATO would not agree thereto, would NATO then be agreeable to raise the monetary value as mentioned in article 3.3.2.8 of the Contract Special Conditions to EUR 500,000?	For simplified procurements, NCI Agency local unit (Mons, The Hague, Norfolk etc) may issue purchase orders directly to the vendor. However, larger procurements such as this one, are managed by a central Agency location (headquarters) in Brussels, and the future Contract will be between the NCI Agency Belgium and the Contractor. From fiscal and legal perspectives, the agreements between the affiliates regarding the accounting is entirely under the responsibility of the prime. Therefore, whether you place a contract between the affiliates, or make any other internal transaction, this is none of the Agency's concern. The reason why the Agency requests for 'subcontractors' to be declared in the Bid is purely legal, as the liability for the implementation of the Contract remains within the prime. The Agency mandates one	**No**

ADMINISTRATIVE CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
			Prime Contractor to be responsible for its partners/affiliates/sub-contractors for the whole implementation of the Contract. The Agency requests for 'subcontractors' to be declared in the Bid also as a risk management measure. The Agency needs to assess whether the Prime has only limited means and work under the Contract, while the subcontractor(s) have most of the work. For the cases where the subcontractors have most of the work, this creates liability issues, as the Prime might not be able to take over the work in case of default by the subcontractor. Requirements under Book I Bidding Instructions Para. 3.3.2.8 remain unvaried.	
A.5	Book I-Bidding Instructions Section 2-General Bidding Information, §§ 2.3.Bid Delivery and Bid Closing Ref. 2.3.3 and next pg 10-11	With the large pandemic Covid evolution, could you confirm to refuse an electronic submission as mentioned in 2.3.5? (Bids submitted by electronic means, including but not limited to email and/or fax, are not permitted and will not be considered).	The requirements for Bid submission were amended to allow electronic bidding only.	**Yes, Book I Para. 2.3, 3.1, 3.2**

ADMINISTRATIVE CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
A.6	BOOK II – Prospective Contract General Index Part V - Service Level Agreement (SLA)	We could not find any Part V SLA document or attachment as such. Please confirm that Part V refers to the appendix in Book II Part IV Appendix B SLA Framework? If not, can you please provide Part V Service Level Agreement?	The draft SLA submitted by the Bidder as part of their Technical Proposal will become Part V of the Contract. SLA shall be drafted following the framework provided under SOW Appendix B.	**No**
A.7	Book I, 1.4.2	The security classification of the contract is "NATO UNCLASSIFIED". However, there is a requirement for Contractor staff involved to have "NATO Secret" clearances and Book I paragraph 1.4.2 states that Contractor shall be required to handle and store classified material up to the level of "NATO SECRET". As the IFB also requires Bidders to be "national public or commercial telecommunication operations", the intent of this question is to fully understand the level of customization necessary to meet the requirements. For example: • Is NATO refering to data needed to install the solution (e.g. IP addresses, or site survey information)? • Does NATO expect ongoing information pertaining to performance of the service (i.e. metadata, outage data, reports, etc) to be classified?	Answer to 1st Question: YES, those data may be up to NATO RESTRICTED. Answer to 2nd Question: NO, unless site-related information classified NATO RESTRICTED needs to be included in those reports, which should be exceptional. Answer to 3rd Question: any information involving detailed layouts of NATO facilities, and in particular any information about the physical boundaries of those facilities and the interfaces to external facilities, including boundary protection mechanisms, will be considered sensitive and in most cases be handled as NATO RESTRICTED. Any documentation describing physical characteristics of buildings or communications infrastructure, detailed design information identifying solution	**No**

ADMINISTRATIVE CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
		• Can NATO provide examples or identify what classified material will need to be handled and/or stored?	architecture and design or performance constraints are considered to be above NATO Unclassified (NR).	
A.8	SEC-2	SEC - 2 says "All Contractor staff involved in Project Management, Service Implementation and Service Delivery shall be security cleared" to NATO Secret. • It is understood that this requirement relates to the key personal listed in PM-23 (Service Implementation) and PM-24 (Service Delivery). • It is also understood that NATO is looking for a Contractor Owned / Contractor Operated COTS solution provided by a national telecommunication operator. National telecommunications operators have hundreds of staff (e.g. purchasing, invoicing, etc.) that are involved in the delivery of a service. • Outside of the key staff roles or personnel requiring onsite access, are there any other contractor staff that require NATO Secret clearance?	All personnel employed under this Contract, that will be required to handle classified material and access NATO sites, shall possess, at the time of Contract award, the appropriate personnel clearances up to "NATO Secret" level, confirmed to the Purchaser by the relevant National Security Authority.	**No**
A.9		For ICBs, is it possible to create the contracts in other NATO countries besides Belgium? E.g., would it be possible to use NCIA in The Hague or Norfolk, Virginia, for a contract that was bid on by a Dutch or American company?	Assuming that this question relates to VAT issue, please consider that the Purchaser is NATO CI Agency with its headquarters in Brussels, but by virtue of its status under the terms of Article IX and X of the Ottawa Agreement the Purchaser is exempt from all	**No**

ADMINISTRATIVE CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
		Would NATO be willing to consider that the Prospective Contract will be entered into by a NATO NCI Agency established in the USA instead of Belgium?	direct taxes (incl. VAT) and all customs duties on merchandise imported or exported. Please also see Exemption from VAT Article 42,§3&3*of VAT Code for Belgium, or Article 151, §1b of the Council Directive 2006/112/EC dd. 28 November 2006 on intra-community purchases and/or services. Furthermore, please also note that the future Contractor may issue sub-contracts to firms from any participating NATO member nation. **However, the prime (the Contractor) remains responsible for the administration and performance of all Sub-contracts**. The Contractor shall also make sure to flow down to the subcontracts the prime Contract provisions deemed necessary to meet the requirements of the Contract (eg security, liabilities, termination terms etc), see **Book II Part II SPs Art. 26.2.5**. The Bidders are required to identify by name, project role, and country of origin all significant sub-contractors within their Bid.	

ADMINISTRATIVE CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
A.10	19.8	"The amount of Service Credits due by the Contractor shall be recovered by the Purchaser by deducting such Service Credits from the quarterly invoice for which the service level requirements were not met." Q: Will the agency accept credit notifications separate from the invoice?	Service Credit status are contractually calculated, verified and agreed monthly, therefore the Purchaser believes that deducting accumulated Service Credits from the invoice of the relevant quarter is a reasonable requirement, as the Credits were already agreed upon upfront.	**No**
A.11		Would NATO be willing to consider a limitation of liability in favor of the Contractor with respect to contractual breaches so that the limitation of liability correlates (more) with the total contract value of the contract?	As per Book II Part II SPs Article 18.3, **Liquidated Damages** shall be payable to the Purchaser from the first week of delinquency in delivery, and shall accrue at the rate specified in this Article to a maximum of Fifteen Per Cent (15%) of the total price for Service Implementation and Project Management. The application of Service Credits, Liquidated Damages or Penalties does not prejudice other Purchaser's rights under the Contract, such as Termination for Default under Clause 38 of the General Provisions. Service Credits are limited to 72 hours. After 72 hours there are no service credits, but service payments are reduced or withdrawn, as follows: 1) if degradation in performance exceeds 72 hours (under the limit that declares the	**No**

ADMINISTRATIVE CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
			service "unavailable"), service payments are reduced to 50% 2) if service outages exceed 72 hours, service payments are withdrawn.	
A.12	Annex B-7	Could NATO elaborate what it means by "supplemental agreements"?	Please refer to Book I Para. 2.14. and 3.3.2.7. Some examples include export licences and technical assistance agreements.	**No**
A.13	Book II, Part III §18.8	Could you specify the possible field / scope of negotiations to be held during the contract awarding process: are all terms, conditions and/or specifications of the contract open to negotiation?	General Provisions Clause 18 refers to Claims, so it is not clear to the Purchaser how this question related to Claims. However, please refer to Book II Part II SPs Article 20, explaining the acceptance, without reservations, of the Contract terms. Also, please see Book I Para. 2.7, explaining the procedure of requesting waivers and deviations. Requests for alterations to the terms or conditions of the Prospective Contract will not be considered after the request for clarification process.	**No**
A.14	Book II, Part 3 2.35, 2.36	Could you clarify what is meant by a subcontractor: is a supplier of the service provider for the purpose of the contract, who provides a service brick which is not a CLIN per se, a subcontractor?	Sub-contractor is indeed a service provider, not to be confused with the manufacturer/vendor/supplier providing the goods.	**No**

ADMINISTRATIVE CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
A.15		After careful review and input from a wide range of assesing units we can confirm that it will not be possible to deliver a bid on the 10th December 2020. Due to the very large volume of documentation required, various confusing or conflicting technical requirements, the introduction of further unexpected lock downs in Europe due to COVID and the Christmas period we request an extension of the bidding deadline to at least the end of January 2021.	The procedure to request for Bid Closing Date extension is explained in Book I Para. 2.4. However, please note that extensions to the bidding date are entirely at the discretion of the Purchaser.	**No**
A.16	Article 17.3 of Book II Part II (Page 13)	In Article 17.3 of Book II Part II (Page 13) it is stated that "The Contractor shall submit an invoice quarterly in arrears for Transport Core Services rendered under CLIN [2] [7], as well as for the services under Optional CLINs [4 and 5] [9], if exercised …" and "Only the services accepted by the Purchaser through the signature of SDPRs and Minutes of the quarterly Service Performance Review Meetings (SPRM) can be invoiced by the Contractor. The quarterly invoices supported by accepted SDPRs shall be issued by the Contractor not later than within fifteen (15) calendar days from the last day of the quarter." Question: Is it possible to move to a monthly (in arrears) invoicing cycle based on accepted and signed off Monthly SDPR's ? This monthly cycle would apply to CLINs [2] and [7].	No, given the scope of the Contract (3 sites only) quarterly invoices are appropriate for both, Contractor's cash flow and administrative effort.	**No**

ADMINISTRATIVE CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
A.17	Prospective Contract Part I Section 2 – Schedule of Major Performance Milestones and related Payment Milestones	Regarding "Prospective Contract Part I Section 2 – Schedule of Major Performance Milestones and related Payment Milestones", the Bidder suggests including a more granular set of invoicing milestones, in order to better align the milestones to expenditures and resources. The current milestone table shows 4 milestones: 1. Acceptance of Service Implementation Package (SIP) 2. Provisional Service Acceptance (PSA) 3. Final Service Acceptance (FSA) 4. Transport Core Services The Bidder proposes to further split the first Milestone 'Acceptance of Service Implementation Package (SIP)' the into the following more granular invoice milestones 1. SSR Accepted 5% 2. SDD Draft Accepted 5% 3. STP Draft Accepted 5% 4. PMP accepted 5% 5. SIP Accepted 20% 5. The Bidder proposes to further split the second Milestone 'Provisional Service Acceptance (PSA)'into the following invoice milestones 1. Site Install Acceptance 10 % per site accepted	No, given the COCO service provisioning model, the Purchaser does not expect heavy expenditures and resources for Service Implementation stage, and considers that the proposed milestones are appropriate for [CLINs 1 & 3] [CLINs 6 & 8].	**No**

ADMINISTRATIVE CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
		2. Provisional Service Acceptance 10% The Bidder proposes to further split the third Milestone 'Final Service Acceptance (FSA)' into the following invoice milestones 1. Service Activation 10% 2. Final Service Acceptance 10%		
A.18	Book II – Prospective Contract Part II page 8, point 10.5	Please confirm whether a solution based partially on Huawei equipment will be authorised.	Negative. As per Prospective Contract **Special Provisions Article 9.5**, no material or items of equipment down to and including identifiable sub-assemblies delivered or used under this Contract shall be manufactured or assembled by a firm other than from and within a Participating Country. The definition of Participating Countries is provided under **Clauses 2.27 and 9 of Prospective Contract General Provisions**. The definition of Assemblies and Sub-Assemblies is provided under **Clauses 2.1 and 2.34 of Prospective Contract General Provisions**. Note that Components and/or Parts (as defined in AcodP-1) are not subject to this requirement.	**No**

ADMINISTRATIVE CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
			The Bidders are required to sign the Administrative Certification B-9 in this regard (see **Book I Para. 3.3**), to be included in the Administrative Package (Part 1) of the Bid.	
A.19	2.2.3	With regards to equipment only being from member nations, can NATO please confirm if this also applies to backbone equipment? Is non-member equipment permitted on the transport sections if not at the customer location?	As per NATO policy under AC/4-D/2261 (1996 Edition), firms from other than participating countries are excluded from acting as contractor, sub-contractor or manufacturer. This NATO policy document does not make any distinctions between backbone and other equipment. See also answer to A.18 above.	**No**
A.20	Book II, Part II 10.5 Page 8	Does that mean that all the equipment and its components used to deliver the service must have been manufactured and/or assembled by a firm from one of the Participating Country ?	See answer to A.18 above.	**No**
A.21	Book II, Part II 10.6 Page 8	To be clear, no Intellectual property rights used to deliver the service (IPR from designs, documents, software's) shall belong to and benefit a firm from non-NATO country ? Therefore, no designs or documents software used to deliver the service must be from a non-Participating country ? Could you please clarify this requirement ?	See answer to A.18 & A.19 above.	**No**
A.22	17.2	Would the Purchaser please confirm that invoices for meetings and project deliverables should occur within 15 days from the end of the quarter following the meeting and not 15 days after the meeting in that quarter?	AMD1 Contract Special Provisions Article 16 makes a clear distinction between payments for (1) Service Implementation & Project Management, and (2) Service Delivery phases.	**No**

ADMINISTRATIVE CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
			For phase (1) above, the invoice shall be issued by the Contractor within fifteen (15) calendar days from the Purchaser's written Service Acceptance as per SoW Section 2.6 procedures and SPs Article 15.	
A.23	17.6 (h)	Would the Purchaser please confirm that the suppliers can utilize phrasing that honors the meaning and intent of the wording and do not need to use this exact wording on the invoice?	No, this is a standard requirement in all Agency Contracts stipulated in the General Provisions Clause 25.4.	**No**
A.24	25.2.1-6	Would the Purchaser please provide a sample of the text type and length they are looking for in this section with particular emphasis on the Accounting Code length as this is required in addition to the CLIN codes?	General Provisions Clause 25 is supplemented by Special Provisions Article 17, where the information requested by the Prospective Bidder is provided.	**No**
A.25	19.8 and 25.3	Would NATO confirm that it is acceptible for the quarterly statement of account to show the credit against the billed period.	The statement of account, which summarizes all activities and transactions that took place between Contractor and Purchaser, is not a requirement under this Contract. The Service Credits of the previous 3 months should be deducted from the quarterly invoices. Please see also our answer to CR A.10.	**No**
A.26	Annex B-11, 4.3	Would the Purchaser accept Contractor/Subcontractor job titles for designating key personnel, with proposed qualifications as required in 4.3, in lieu of identifying named individuals?	Yes, but it must be clearly stated in the table B-11 that the proposed individual is from subcontractor company.	**No**

ADMINISTRATIVE CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
			Please note that the requirements clarified under A.1 and A.8 above are valid also for subcontractor personnel.	
A.27	General Provision 2.35	Will NATO please confirm that general supplier agreements that are not specific to the NATO TCS opportunity are not subcontracts within the meaning of General Provision 2.35, even if an offeror intends to purchase supplies or services through the supplier agreement for use in providing NATO TCS services?	Please see General Provisions Clause 10 for more information regarding the subcontractors. All subcontractors that will be listed in your Price Proposal, and in particular the ones that exceed EUR 100,000 in subcontract value, shall be declared in Annex B-8.	**No**
A.28	3.3.2.10	The requirement for ISO Certification in 3.3.2.10 implies that the ISO certification should cover the company (bidding entity) as a whole. To achieve this for many multi-operational and international companies would be a heavy burden on the cost base, inasmuch as it would include products and services that would not befit from such a Certification. Is it acceptable to the purchaser to provide ISO Certification covering the products and services under offer?	Yes, the Contractor shall possess and apply Quality Assurance Procedures / Plans that are compliant with AQAP 2110, ISO 9001 or other equivalent standards at least for the services/products applicable to TCS Contract implementation.	**No**
A.29	Book I & Book II	We notice NCIA is requesting certification for subcontractors: Although the value of some subcontract could be significant (100.000 Euro as mentioned by NCIA), the additional quality of service as a result of the certification will be marginal. Also the implementation of ISO standards obliges the provider to define and agree	For the first part of your question, please see our answer to the CR A.4 above. As for quality assurance standards, the certification is required for the prime Contractor. Please also see our answer to CR A.28 above.	**No**

ADMINISTRATIVE CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
		on SLA/OLA with the subcontractors. Knowing that certifications towards subcontractors are costly, time consuming and almost never asked by other customers, we feel that NCIA, as only interacting with the main contractor, should not ask this certification. This could lead bidders to a no-bid decision.		

ANNEX E – CLARIFICATION REQUEST FORM

INVITATION FOR BID
IFB-CO-14797-TCS

CLARIFICATION REQUEST FORM - TECHNICAL

Release N° 2

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
T.1	N/A	Is NALLA/ALLA certification a requirement to participate in this IFB?	No, this is an old requirement, for the NDNs and LCP, but not the Core. ALLA does not exist anymore.	**No**
T.2	SVC-1	The request is for Ethernet Private Line services compliant with MEF 2.0. , MEF 6.3. and MEF 14. Can the Contractor deliver in stead a solution based on 100Gb Wavelengths. Note that this solution would deliver a complete transparent optical protected service between the sites.	The request is for EPL on the UNI. The inner solution behind that interface is the provider's decision.	**No**
T.3	SVC-6	Could you elaborate on the requested diversity between circuits. As all 3 circuits need to be protected, is our assumption correct that every circuit to a site will have a diverse path for the worker and the protection using two different intro's into the site and that the other circuit to that same site can use the same two site intro's?	99.9% per circuit implies that each of the three circuits needs to be protected. The assumption is correct.	**No**
T.4	SVC-40	What is the maximum latency that connections should comply to and to what extend can the latency be different between worker and protection path.	Table A-3 and A-4 apply (latency = frame delay). Latency between physical paths can vary, provided the latency measures UNI to UNI is compliant	**No**

[1] To be completed by the Purchaser: Specify 'YES' if the Amendment to IFB will be required as a direct result of the Clarification Request

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
T.5	SVC-43	Could you elaborate on the requested Service Availability. Is the single link availability of 99,9% refering to a un-protected or a protected link. With protected we mean two diverse paths, in active/passive mode with automatic fail-over to a single UNI.	99.9% implies that the link is protected, through two diverse physical paths, in active/passive mode with automatic seamless fail-over of the single UNI.	**No**
T.6	SLA-6	Service degradation shall be penalized when exceeding the limits in Table A-5. This includes situations where the limits in Table A-6 are also exceeded (Severe Degradation). Could NATO please clarify wether service degradation will also kick in after 4.3 minutes if a link is fully down (aka no performance measurements possible at that time).	SLA-6 has been amended as per the below Service degradation shall be penalized when exceeding the limits in Table A 5. This includes situations where the limits in Table A 6 are also exceeded (Severe Degradation), and the link is considered unavailable, **or the link is down**. In such situations, penalties for Service Performance apply, until the time the period exceeds 44 minutes, and Service Availability credits as in Table B 2 kick in.	**Amended**
T.7	SI-11	The SDD shall provide evidence that each EPL is implemented with a primary and alternate bidirectional paths, with full 100G bandwidth reservations on both paths. However there is no requirement stated for such an architecture (full end-to-end primary and secondary path per EPL) in the Service Requirements. For example SVC-6 mentions three physical paths carrying the EPL's (i.e. one per EPL). Should the bidder understand if primary and alternate	See answers to T.3, T.5.	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
		bidirectional paths are the required architecture (1+1 protection mechanism)? Please confirm.		
T.8	SD-9	Contractor shall monitor availability of both the primary and alternate paths. However there is no requirement for such an architecture (full end-to-end primary and secondary path per EPL) in the Service Requirements. Should the bidder understand if primary and alternate bidirectional paths are the required architecture (1+1 protection mechanism)? Please confirm.	See answers to T.3, T.5.	**No**
T.9	SVC-13 till SVC-20	There seem to be contradictions in the requirements between SVC-13 and SVC-20. Namely for LACP/LAMP, Pause, LLDP, E-LMI and Link-OAM. SVC-13 defines them as must pass while SVC-20 requires peering or discard. Please clarify.	SVC-13 prevails. SOW will be amended	**Amended**
T.10	SVC-43 till SVC-45	Service Availability will be measured using three attributes, however only two have been defined in SVC-44 and SVC-45 (no definition found for Dual Node Reachability). Please clarify.	Dual Node Reachability will not be considered. SOW will be amended.	**Amended**
T.11	PM-7 5)	To provide wider software compatibility, is it acceptable to develop the GANT and PERT charts using Microsoft Project version 2013, rather than version 2019?	Yes.	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
T.12	SVC-1	If the Service Provider is certified against MEF3.0 Carrier Ethernet (CE) is the service considered compliant, considering that MEF3.0 CE is enhancing MEF 2.0 Services ?	Yes.	**No**
T.13	SVC-7 till SVC-8	Is it considered compliant if the service provider shows that it is in the process of acquiring the relevant MEF certification at the time of submitting the offer, and it secures this certification at contract award stage?	Yes, but certification needs to be granted ahead of contract award.	**Amended**
T.14	N/A	Will bidders be given permission to carry out civil work to provide new optical fibre entry points into NATO locations, as required and subject to survey?	The provider is responsible to obtain any civil work permits required to achieve the diverse physical entry. Inside the compound, the local rules for such civil works should apply. We cannot commit to guaranteeing such approvals.	**No**
T.15	Book II, Part IV, SOW: 1.3 Locations	Can you provide the exact address (including the exact building number) for each location to install the service and related network equipment?	Yes, see Appendix I of the SOW.	**Amended**
T.16	Book II, Part IV, SOW: 1.3 Locations	Can you confirm that the location named NCIA HQ in Bruxelles identify the node at Evere municipality?	Yes.	**No**
T.17	Book II, Part IV, SOW: 1.3 Locations	In order to understand the main spaces available and the duct status to bring the fiber cabling: - can you plan a site survey for each location?	Additional information has been included in Appendix I of the SOW. Site survey and site plan will be provided after the contract award.	**Amended**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
		- can you provide a scale map for each building rooms where bring the connectivity and install the necessary equipment on premises?		
T.18	Book II, Part IV, SOW: 1.3 Locations	Can you confirm the NCIA responsibility for the fiber infrastructures inside the bases from the Demarcation Point up to the buildings?	No, responsibility will lie with the territorial host nation for the site concerned, or with the local telecom provider(s) present at the site. In no case NCIA is responsible for that infrastructure. See response to T.35.	**No**
T.19	Book I, Page I-5: 1.2.1 Scope of the Project	Please explain the meaning of the term "resilient" referred to the 100G Ethernet transport services to be procured as scope of this project.	Each link is protected with a primary and an alternate path.	**No**
T.20	Section 2 - Service Implementation: SI-11 Section 3 - Service Delivery: SD-9	Referred to each node of the Transport Core Network, can you confirm that each node should be capable of 100Gbps downlink and 100Gbps uplink?	Confirmed.	**No**
T.21	Section 2 - Service Implementation: SI-11	For each node, must the physical paths be connected to different and separate telco operator POPs (Point of Presence)?	No, it could be the same telco's geographically separated PoP	**No**
T.22	Section 2 - Service Implementation: SI-10 point 5)	How many KMZ file shall be produced in total for each node and which part of the network should be included in their representation?	2x3, End to end.	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
T.23	Appendix A - Service Requirements: SVC-2	Please explain better the architecture depicted at Figure A-1 because it is not clear in respect of SI-11, SD-9. How many primary and alternate path must be configured per each P-Core router?	Figure A-1 does not go into the level of detail that would show the primary and the alternate paths. Figure A-1 merely shows "links" with a given availability target (degraded availability target, in this particular figure; see answer to T.57). Each P-Core router shall terminate a single link, as represented in the figure. The primary and alternate paths shall not be physically presented to the P-Core router.	**No**
T.24	4.3 Roles and Responsibility: PM-23, PM-24	Please confirm that the PRINCE2 certification is required only for the Project Manager and NOT for all the professional profiles detailed at PM-23 and PM-24.	Confirmed.	**Amended**
T.25	A.2 Standards: SVC-7	Are the standards certificates to be attached together the administrative documents or auto-declared inside the Technical Proposal?	The latter. SVC-9 has been modified accordingly.	**Amended**
T.26	A.2 Standards: SVC-7, SVC-8	Shall the partners and subcontractors own the certificates as per SVC-7?	Yes, for those that are directly and permanently contributing to delivering the services during the Service Delivery stage.	**No.**
T.27	A.4 Service Attributes: SVC-11, SVC-12	Please, confirm that the compliance attributes shall to be auto-declared inside the Technical Proposal.	Confirmed.	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
T.28	Section 3 - Service Delivery: SD-3, SD-32	Concerning the online monitoring tools to be implemented, please specify: - the access level to be configured - the requirements of the service (eg. dashboard, https link, etc.) - the different users to be configured if different access level are required - if training is necessary	Read access Training required	**No**
T.29	Section 4 - Project Management 4.2 Roles and Responsibility: PM-23, PM-24	Please, confirm that only the key personnel indicated in PM-24 is required during Service Delivery stage.	During service delivery (in–service) stage persons should be designated for the roles as indicated in PM-24.	**No**
T.30	Section 4 - Project Management 4.1 Purchaser's Project Management Approach: PM-1	Does the Senior Supplier (Contractor's representative to Project Board) must to guarantee daily on-site presence?	No.	**No**
T.31	Section 1 – Introduction 1.4 Milestones: [13]	In Figure 1-2, Project Management area covers all Service Implementation stage ending after Site Activation (and consequently Final Service Acceptance), which starts the Service Delivery stage. Does this mean that Project Board will not be in place during SD stage?	During the service delivery stage the Project Board is not required. The operation and maintenance activities will require responsibilities as described in PM-24.	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
T.32	Appendix A Service Requirements: SVC1	Please clarify the requirement: The Contractor shall be responsible for providing and implementing Ethernet Private Lines (EPL) compliant with the Metro Ethernet Forum 2.0 (MEF 2.0), at speeds up to 100 Gbps, between the P-Core Router cluster in the three Core Nodes.	If this question is about the interconnection between the two collocated P-Core routers that form the cluster at each site, that is outside the scope of the contract of course. If not, then the question is not understood.	**No**
T.33	Appendix A Service Requirements: SVC-44 Single Link Availability	Please clarify if the single link must be protected via the alternative path in order to meet this requirement. SVC-44 Single Link Availability shall be equal or higher than 99.9%, measured 24x7 over a period of one month, for the connectivity provided by any single EPL between two adjacent Core nodes and their corresponding PCR clusters.	Confirmed.	**No**
T.34	Book II – Part IV SOW - § 1.6 (28)	Could you confirm that there is a typo error in the second part of the statement and that it should be read as "Items referenced with a number in brackets are for information purposes only and will **NOT** be assessed for compliance". If not, please clarify.	The typo has been corrected.	**Amended**
T.35	Book II – Part IV – 1.3 - [11]	As the locations specified in 1.3 of Book II, Part IV are not fully detailed up to building/room/rack level, it is not possible for us to know the exact location of each of the six P-Core Routers and therefore to identify the exact costs related to the installation of cabling from an existing carrier demarcation point or from the public	All costs should be considered in the bid. The cost should be determined up to the telco room of the building where the P-Core is located. The patch between the 2 rooms will be provided by NATO.	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
		domain border up to the P-Core Router location. Can you confirm that it is acceptable that such costs are not included in our bid and that they will be determined based on site survey after awarding the contract?	Please also see Prospective Contract Part II Article 4 explaining the total firm fixed price of the Contract.	
T.36	Book II – Part IV – Appendix A.5 - SVC-28	Please clarify how we should understand your requirement SVC-28: "Service OAM shall provide the capability to detect a change in Connectivity Status within a configurable time interval. This configurable time interval shall be more than the network restoration time." Our current understanding is: if our network restoration time (=the time needed to restore the service after an outage occurs) is X hours, we must check for Connectivity Status change every "X or more" hours.	There are two parts to this requirements. - The time interval to be configurable which should be at any value during normal operation (outside any outage) - This to be higher than the network restoration time in order to avoid that there are constant failure reports during outages and that measurements bear significance after target network restoration	**No**
T.37	N/A	In view of a fair competition, can you confirm that the contractor who is currently providing the transmission bearer services for the NATO High Speed Core, is required to provide a completely separate and new network solution for the TCS in parallel with his existing solution? This including the use of separate Network Terminating Equipment without reusing equipment of the existing bearer services?	The network solution currently providing bearer services shall not be altered in any way or form during the installation of the new TCS capability, in order to prevent any service disruption.	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
T.38	3.1.1 SD-10	"Service Monitoring activities shall consist of three types of measurements: Continuous In-traffic (background) measurements, conducted by the Contractor, for service performance and service availability monitoring purposes. These tests are performed UNI to UNI." Question: at what frequency should test frames be sent? Any specific requirements for the test traffic (number of frames in test sequence, interval between frames, etc)? What should be the polling interval for our performance management tools to collect the test results (that will be the granularity of raw data available for reporting)?	All intervals shall allow SLA measurements and reporting, hence aligned with the SLA target figures: Appendix B.	**No**
T.39	3.7 Section 3.7.2 SD-85	"The Contractor shall provide a draft SLA with the Bid." Question: does it mean that the bidders can propose their standard SLA or only the SLA provided in Appendix B SLA Framework will be considered for this project? Could you please clarify?	The contractor shall fulfill the requirements set forth in the Framework SLA in Appendix B. The Bidder can propose the standard SLA, provided it can demonstrate that text written in fulfilment of those requirements has been introduced and will be adhered to during the Service Delivery stage of the Contract.	**No**
T.40	Appendix A	Are the figures from the tables A3, A5, A6 referring to two-way Frame Delay or is it one-way? Please confirm.	One way, as latency may be different in the 2 directions	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
T.41	Appendix A SVC-12	What's the requirement about SyncE/ESMC? Is NATO requesting a Synchronized network? Please confirm.	SyncE support and transparency are required	**No**
T.42	Appendix A SVC-22	The fiber connection between NATO's router and the NTE is responsibility of the contractor. Only for deployment or also for future maintenance? Please confirm.	Both deployment stage and in-service stage, i.e. throughout the period of performance of the contract.	**No**
T.43	Appendix A SVC-25	Could you clarify what NCIA means with this statement. Can you give an example?	The provider shall be able to place OAM towards NE in the provider network (includes subcontractors) for clearer fault isolation to clarify reporting on Reason For Outage (RFO) and Fix Actions as well as to have the necessary visibility on robustness of the services within provider's network. The end to end service OAM managements domains shall be presented as part of the solution.	**Amended**
T.44	Appendix A SVC-32&33	Is one-way frame delay (latency) measurement a requirement?	Yes, per each EPL and each path within the EPL. This is to allow visibility over having delta delay on the paths leading to higher layers services failure .	**No**
T.45	Appendix A SVC-7&8	In implementing and delivering TCS, the Contractor shall comply with the below listed frameworks and standards (or equivalent): 1) ISO/IEC 20000-1:2018 Information technology -- Service management - Part 1: Service management system requirements	Equivalent can be accepted, but: ISO/IEC 20000-1:2018 certification is for the company with advanced IT Service Management approach while ITIL 4 is given to individuals who learned IT service management approach	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
		2) ISO 9001:2015 Quality Management Systems 3) ISO/IEC 27001:2013 - Information Security Management Systems 4) Metro Ethernet Forum (MEF) 2.0 services and technology 5) Metro Ethernet Forum (MEF) 6.3 Subscriber Ethernet Services Description 2019 Please confirm if the bidder has implemented an equivalent other than the listed frameworks and standards for which no specific certification exists, i.e. ITIL 4 instead of ISO/IEC 20000-1:2018, that no disqualification will be declared?		
T.46	Appendix B	Could you clarify how any unexpected cut in fiber cable delivering the services for any EPL (not due to maintenance activities, service changes) shall be considered by NCIA for the Service Levels? Can this be considered as Force Majeure with the appropriate documentation of the incident (see Article 25 of Prospective Contract Special Provisions in Book II Part II)?	Fibre cuts are integral part of SLA – not a Force Majeure	**No**
T.47	N/A	Is vertical separation of fibre paths acceptable as a method of ensuring diversity? For example one duct running over the top of a bridge and one running below.	There shall be route diversity, and that is not compatible with the scenario conveyed by the question.	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
T.48	N/A	Regarding section A.4 Service Attributes, SVC-20 - L2CP PAUSE (802.3) shall be discarded and SVC-13 - Table A-1 Layer 2 Control Protocols (L2CP): 802.3 MAC Control: PAUSE - Pass L2CP Frames at all UNI's Is the requirement for Contractor to let L2CP PAUSE (802.3) frames to pass transparently or to be discarded ?	Frames shall pass transparently.	**No**
T.49	Appendix A	Regarding section A.4 Service Attributes, SVC-20 - L2CP LINK OAM shall be peered and SVC-13 - 802.3 Operations, Administration, and Maintenance (Link OAM) - Pass L2CP Frames at all UNI's Is this requirement for Contractor to let L2CP LINK OAM traffic to pass transparently ?	Yes, its requirement for Contractor to let L2CP LINK OAM traffic to pass transparently at all UNI interfaces so we have E2E OAM capability	**Amended**
T.50	Appendix A	Regarding section A.4 Service Attributes, SVC-20 - L2CP /ELMI shall be peered and SVC-13 - Ethernet Local Management Interface (ELMI) with Treatment Pass L2CP Frames at all UNI's Is this requirement for Contractor to let L2CP /ELMI traffic to pass transparently ?	Same as above.	**Amended**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
T.51	Appendix A	Regarding SVC-47 - The Contractor shall demonstrate the security management and log functions to assure data transport privacy and Denial of Service prevention / protection of the TCS. If the Point to Point Ethernet services will not traverse any public network (Internet network) is this request applicable ?	Yes.	**No**
T.52	Appendix A	Regarding SVC-12 - Ethernet services shall be compliant with: 2) ITU-T Rec. G.8261 that defines aspects about the architecture and the wander performance of SyncE networks (IEEE 1588-2019 - IEEE Standard for a Precision Clock Synchronization). Is NATO requesting SyncE support or just to confirm that the Contractor is fully transparent ? same question related to points 3) and 4) at the same paragraph	SyncE is required, both support and transparency.	**Amended**
T.53	Appendix A	Section A.7 Service Availability - SVC-44 Single Link Availability shall be equal or higher than 99.9%, measured 24x7 over a period of one month, for the connectivity provided by any single EPL between two adjacent Core nodes and their corresponding PCR clusters. And	Link availability for each EPL is to be higher than 99.9%, i.e. the EPL should not be done more than 43.8 minutes every month. If it is down for longer, Service Credits for availability apply. However, the EPL may be up 100% of the time, but experience performance	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
		SLA-5 [91] These durations correspond to a Degraded Availability rate of 99.99% for each EPL, i.e.: 1) Any continuous degradation lasting less than 4 minutes and 22 seconds (4.3 minutes) is not penalized 2) Any intermitted degradation lasting less than 20 minutes is not penalized. 3) Any degradation above these durations will be penalized with Service Performance credits, as long as the episode lasts, or until the link is declared unavailable, at which point Service Availability credits apply. Question: Please specify if link availability for each EPL must be higher than 99.9% or 99.99% measured 24x7 over a period of one month.	degradation at times, within the bands of Tables A-5 (degraded but bearable) and Tables A-6 (severely degraded <> unavailable). The Degraded Availability of 99.99% means that the link should not be degraded more than 4.3 minutes every month. If the degradation lasts longer, Service Credits for degraded performance apply. For instance, the link can be degraded for more than 43.8 minutes in a month, which means that the availability for nominal performance availability has gone down to 99.9% (and yet, the link is still up). In such case, the Service Credit is 1.5 times the cost of that EPL. If the link remains degraded for more than 7.3 hours in a month, the nominal performance availability has gone down to 99%, in which case the Service Credit is 2 times the cost of that EPL. If link degradation lasts more than 72 hours, service credits do not apply anymore, but payments reduce by 50%.	
T.54	SOW Section 1	Based on Section 1 paragraph 3: [3] For transport purposes, the HSC will rely on Metro compliant (MEF 6.3) "Ether Virtual Connect" (EVC) services of the type "Ether Private Line-1" (EPL1) at 100Gbps, featuring	See answers to T.53 above.	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
		uptimes higher than 99.9% (per EPL). These services are hereafterreferred to as Transport Core Services (TCS). And SLA-5 [91] These durations correspond to a Degraded Availability rate of 99.99% for each EPL, i.e.: 1) Any continuous degradation lasting less than 4 minutes and 22 seconds (4.3 minutes) is not penalized 2) Any intermitted degradation lasting less than 20 minutes is not penalized. 3) Any degradation above these durations will be penalized with Service Performance credits, as long as the episode lasts, or until the link is declared unavailable, at which point Service Availability credits apply. Question: Please specify if link availability for each EPL must be higher than 99.9% or 99.99% measured 24x7 over a period of one month.		
T.55	Book II, Part IV, SOW 1.3 Locations	In order to provide an accurate quotation, could you please give the precise GPS coordinates of the building/room to be connected on each site?	See T.17.	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
T.56	Book II, Part IV, Appendix H	Typographical errors: EVC Ethernet Private Line EPL Ethernet Virtual Circuit Acronyms EVC and EPL are to be switched	Typos have been corrected.	**Amended**
T.57	1.1.3	The RFP states that the single link scalability (EPL) is 99.9% [1.1.3], the Node avalability (Network) is 99.995% (Fig A-3), and Degrade performance is 99.99% SVC-40[84] but Figure A-1 shows P-Core to P-Core on an EVC is 99.99%. Is this in reference to the degraded performace or a separate statistic?	The 99.99% figure in Figure A-1 corresponds indeed to the availability rate with degraded performance. Namely, 99.99% of the time, the EPL shall exhibit nominal performance. In other words, the EPL may exhibit degraded performance for up to 4 min 22 seconds per month, with incurring any service credits. Beyond that window of time, service credits apply, as a function of the duration of the degraded period, T (see Table B-1).	**Amended**
T.58	1.1.3	Can NATO please further explain its strategy for avalability for this project and the servises running over the links?	These links form the core of the current network of 100+ nodes, and future evolutions of it. As such, they carry any traffic from those nodes, intended for one or more of the core nodes (Data Centres), and traversing the core if re-directed/re-routed. These links also carry all the traffic generated by the synchronization of data volumes between the Data Centres.	**No**
T.59	SI-48	Can NATO further expand on the requirements around testing MEF 46, 48.1, and 490.0.1, in line with this being a 100GB Ethernet framed line and the EVC being set up over the 100GB ?	The SOW is clear in stating that: 1) circuits will be tested at an EVC level from the NTE, during the Site Installation and Readiness Testing (SIRT, see SI-44).	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
			2) circuit will again be tested from the PFE (P-Core Routers), during the Provisional Service Acceptance Testing (see SI-55)	
7.60	SD-15	Can NATO please elaborate on their intended use of the 1GB (1%) capacity over and above standard monitoring for ODUs?	This is just a limit not to be exceeded by the provider for the purpose of monitoring the links. In other words, it shall be proven that 99 Gbps are always available to the Purchaser.	**No**
T.61	Uni Specification	Can NATO please confirm the MTU of >=9026, as 9000 is a common operational cap on much OTU equipment, stretching to 9100 for some. Would NATO please revise the requirement to 9000?	It is confirmed, based on the fact that 9000 MTU are required on the user side. The additional 26 bytes account for overhead introduced by the P-Core Routers that are connected to the 100G termination devices.	**No**
T.62	2.2.3	Can NATO define further please the classification of a sub-assembly? What elements within a network device would this be applicable to - in particular, would all of a chassis be included - so its associated cards, their SFPs and connecting fibers?	A network device is an assembly, which an consist of two or more sub-assemblies. A sub-assembly is a collection of parts. The chassis, network modules, processor modules, are sub-assemblies. Network cards and their SFPs are example of parts, belonging to a network module sub-assembly. Power supplies are parts, belonging to the chassis sub-assembly.	**No**
T.63	SI-46	Can NATO confirm if the testing is to be Tester to Tester or Loop Test?	The provider may run loop tests inside its domain. For the purpose of service acceptance and delivery, testing is to be provided Tester to Tester from SDPs	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
			represented by UNI-to-UNI services provisioning.	
T.64	Appendix A	SVC-45 Single Node Reachability shall be equal or higher than 99.995%, measured 24x7 over a period of one month, for the connectivity provided between the PCR cluster in any given Core node, and the PCR cluster of one of its adjacent Core nodes. Question : While based on the Service Requirements there is no statement for Contractor to re-route the traffic to other Node if one EPL is unavailable, please specify if Single Node reachability for instance: C to A directly or C to A via site B is in Contractor responsibility ?	Anything related to the performance or functionality of the P-Core routers is outside the SLA. The Contract concerns only the individual links interconnecting those P-Core Routers, and their termination over one interface (per link and per P-Core Router).	**No**
T.65	Appendix B	B.2.2 Service Availability Credits - SLA-9 paragraph 2) Single episode leading to node outages, continuous or intermittent, exceeding the monthly downtime limit for Single Node Reachability (99.995%), i.e. 2 minutes and 11 seconds Question: If re-routing the traffic to other Node if one EPL is unavailable, for instance: C to A directly or C to A via site B is Not in Contractor responsibility, does this SLA terms apply?	See T.64.	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
T.66	Appendix B	SLA-10 - Credits for Unavailable Links and Unreachable Nodes shall be graded based on … Question: If re-routing the traffic to other Node if one EPL is unavailable, for instance: C to A directly or C to A via site B is Not in Contractor responsibility, does this SLA terms apply?	See T.64.	**No**
T.67	Appendix B	Question 6: SLA-10 - Table B-3 Credits for Node Reachability deviations (vs time duration bands) Question: If re-routing the traffic to other Node if one EPL is unavailable, for instance: C to A directly or C to A via site B is Not in Contractor responsibility, does this SLA terms apply?	See T.64.	**No**
T.68	Appendix B	SLA-11 - Service credits for Node Reachability deviations shall be added to any Service Credits for Link Availability of the individual links affected Question: If re-routing the traffic to other Node if one EPL is unavailable, for instance: C to A directly or C to A via site B is Not in Contractor responsibility, does this SLA terms apply?	See T.64.	**No**
T.69	SVC-2 to SVC-4	The requested network architecture rightfully foresees resiliency both in the form of protected links as route separation to underpin the requested perfromance and availability SLA's.	The requirement is for a single UNI. Whatever active and passive devices are used to provide that single interface contribute to the total availability figure. SLA-6 only calls for service	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
		However the architecture also dictates the supplier to introduce single points of failure at the UNI interface level (i.e. one single 100 Gbps) interface per destination), which seems to be in conflict with the required availabilty level. It is deemed to be simply impossible to replace a physical device/cable (that is a SPOF) on site within 4.3 minutes (SLA-6) and the architecture specifically forbids to design around that. Could you please adjust the SLA mechanisms to acknowledge the (on-site) SPOFs as requested per design.	credits to be applied when underperformance (or a plain outage caused by that particular device, refer to T.6) occurs. The Contractor can minimize its exposure to those credits through various means, which are considered part of the design and the in-service support concept sought under this Contract.	
T.70	Book I - Page 26, 3.5.5.	How elaborate do we have to make the Service implementation Package as required in the Service Implementation Proposal ? Is in this phase a description of the plans sufficient or to what level of details need it already to be worked out ?	To the level of detail required in the SOW (e.g. the contents of the SDD are very explicitly formulated in the requirements). We want to see a sound and consolidated, ready to be deployed design, not an analysis of technical options, or a design based on assumptions. The "description of the plans" belongs to the draft PMP of the Management Proposal.	**No**
T.71	SOW Section 2	Section 2.2 Site Surveys SI-8 paragraph 1) : Site access points for any last-mile Service Providers, covering both the intended option (Default Location within the sites listed in § 1.3) and all other available options (Alternate Placement1);	SI-8 refers to alternate options beyond the intended one in providing the services at each site, not that there are any other sites than the 3 mentioned under 1.3	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
		Q: Please specify what could be the other available options (Aternate Placements) to the NATO sites specified at section § 1.3		
T.72	SOW Section 2	Section 2.2 Site Surveys SI-8 The Site Survey Report shall, at each Transport Core site, identify and document the following: 2) Rack location, AC power supply and environmental requirements for the Contractor equipment, up to the UNI demarcation point on the PFE device (PCR cluster); Q: Usually the rack location information is provided by the purchaser, while rack space requirements and AC power consumption of the Contractor equipments is in Contractor responsibility to provide, please confirm that rack location information will be provided by purchaser (NATO).	The rack location (room) shall be identified during Site Survey.	**No**
T.73	SOW Section 2	Section 2.2 Site Surveys SI-8 The Site Survey Report shall, at each Transport Core site, identify and document the following: 5) Point of Contact(s) information for the site; Q: Please detail the Point of Contact information. Is this refering to Purchaser Local Site Contact ? Usually this information is	These shall be provided and identified during the site survey. NATO shall provide advance POC information for site survey planning.	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
		provided by the end customer (Purchaser). Please confirm that NATO will provide Local site Contacts for each Nato site.		
T.74	N/A	Question: Is it allowed to create a new physical optical cable entry for the Mons SHAPE building ?	Yes, but it is a hardened facility, existing cable entries have to be used	**No**
T.75	SVC-1	With reference to T.2 question above, it was confirmed in the bidders conference that the internal technology used behind the UNI in the bidders network is not relevant. Can you please confirm that many of the requirements, specifications and questions are not relevant when a solution based on Wavelength is proposed. Hence they would not be answered in case a Wavelength based solution is offered.	The nature of the solution is irrelevant, provided the service specifications defined at the UNI are met, and the Bidder proves that the link is protected by an alternate path, that is physically diverse from the primary path. The statement about many of the requirements becoming irrelevant if the solution is based on wavelengths is wrong, or a plain misunderstanding of the SOW at large.	**No**
T.76	Book II, Part 4 SOW SI-8 4)	For a fair competition, could you mention which companies already detain authorisation for civil works within NATO sites? Is there a restriction on the number of such companies? What is the process and delay to obtain such an authorisation, if applicable, for another company?	There is no such authorization, so there is no restriction and no process to obtain it. The selection and management of subcontractors is the responsibility of the prime Contractor. In case it may help, we can identify some telecom companies with existing cable infrastructure at these locations:	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
			NNHQ: Eurofiber, British Telecom, Proximus, Colt, Orange, Verizon. Mons: Britsh Telecom, Proximus, Verizon, VOO, SOFICO, Eurofiber. Lago Patria: British Telecom, Telecom Italia, Fastweb, Verizon.	
T.77	Appendix A.2: SVC-7, SVC-8	Can you confirm please that Prime Contractor can use the MEF 2.0 certification in possession of its affiliate (controlled company), also considering its role as subcontractor in this competition?	Only if the implementation and configuration of the infrastructure required to deliver the service is the responsibility of that affiliate.	**No**
T.78	Appendix A.5	In order to fulfill the requirements for Service Administration Operation and Management, is it allowed to use layer 3 shadow routers on a specific management network?	No, any management traffic shall flow in-band.	**No**
T.79	Appendix A.6: SVC-39	In order to monitor the NTEs status, can you confirm that the Contractor can use an ad hoc management network?	No, any management traffic shall flow in-band.	**No**
T.80	N/A	Section 3.1.1 - SD-3 The Contractor shall provide, as part of the delivered services, direct access to real time test and monitoring tools to the Purchaser, in support of the Service Monitoring activities described here below. Question - Please note that direct access to the tools used to monitor and test end to end services (i.e. including core) would contravene	Yes, provided the information is synchronized and up to date.	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
		our strict security and risk processes. Can we reccomend that reports are generated to suit the purchaser and made available via a separate customer portal, we can then also provide oversight via chaperoned performance testing (i.e. via VC screen sharing with NOC staff).		
T.81	Appendix F (CDRL)	Items #4 and #10 are the same. Can we assume that item #10 is "Service Testing Plan (STP) - Final " instead of the "Draft" ?	Yes.	**Amended**
T.82	BOOK I - THE BIDDING INSTRUCTIONS Section 3 Bid Preparation Instructions	Section 3.5.5. Shows that the Service Implementation Proposal during bid phase exists only out of 2 sections: SDD and STP. However in Annex C: Evaluation Criteria pg C-2 BI section 4 Ref 4.4.4 is shown that also a QAR needs to be supplied. Could you please clarify if QAR is required for bid submission.	QAR has been removed.	**Amended**
T.83	Book II, Part IV, SOW SI-70	The SIP package during Service implementation should include an SDD, STP and QAR. Whilst the expected contents for the first two deliverables are well described, a similar description could not be found for QAR. Can NATO please define the exact requirements for the QAR.	QAR has been removed.	**Amended**
T.84	Book II Part II Prospective Contract Special	"The target delivery date for a new Service (eg installation and provision of Ethernet Transport Services at a new Node) is three (3) months from the date of receipt of the signed Service	This requirement will be removed.	**Yes, Book II Part II SPs Art. 8**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
	Provisions art 8.4	Request. In certain exceptional cases, to be justified by the Contractor and formally approved in writing by the Purchaser, the lead-in time may be longer than three (3) months but shall not exceed four (4) months in any case." However, even adding a single additional node in full meshed topology would alreday result in a larger (new) scope than this initial project eg: the delivery of 3 additional EPL's at 4 locations. The specified leadtimes for new Service (Installation and Provisioning) are now way near the imposed teamlines for the original provisioning (9 months). Installation of new services (100G) will require the same effort as the original installed lines and will therefore have similar leadtimes. Additionaly the tasks performed by NATO ((eg PSAT,...) is included in that 3 months and therefore even shorten the available time to complete. the There's no valid reason for the differnece. Please allign the leadtimes for new Services to the leadtime of the baseline implementation.		
T.85	BOOK I BIDDING INSTRUCTIONS - 3.5	The structure of the Technical Proposal as described in sections 3.5.2, 3.5.3; 3.5.4, 3.5.5 and 3.5.6 of the Bidding Instructions only cover a small portion of the entire SOW. The following SOW sections are not incorporated in one of the three volumes of the Technical proposal: 2.1 / 2.2 / 2.4 / 2.6 / 2.7.2 / 3.1 / 3.2 /	4.1 and 4.3 are covered under the Project Management Plan required under 4.2 Any 3.x section →Service Delivery proposal Any 4.x section → Management Proposal	**Amended**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
		3.3 / 3.4 / 3.5 / 3.6 / 3.7.3 / 3.8 / 4.1 / 4.3. Can NATO please specify in which of the three volumes of the Technical Proposal these SOW sections needs to be answered?		
T.86	SI-55	It is stated that PSAT shall be conducted exclusively with test tools provided and operated by the Purchaser. The IFB does not clarify which tests are envisioned. Will the Purchaser create the PSAT Test Procedures and Test Acceptance Criteria and share them via the SIRT (See also SI-39)? Please clarify.	The tests shall be proposed in the PSAT Test Procedures by the contractor. Additional information is being added on the brand and type of router used as P-Core router, for the Contractor to take that into consideration when formulating those procedures.	**Amended**
T.87	SI-59	It is stated that the Contractor shall produce a PSAT Report which seems counter-intuitive as the PSAT will be executed by the Purchaser using its tools (SI-55). Could you please confirm. If so, will the Contractor be able to witness the execution of the PSAT test cases	The Contractor will be able to witness and collect all the information gathered by the Purchaser's test tools, and use that information for the preparation of the report.	**No**
T.88	[55]	ISO/IEC 2000 is quoted. Is this a typo	Yes. It should read ISO/IEC 20000	**Amended**
T.89	Book II, Part IV, SOW Appendix F (CDRL)	Items #3 & #9 are the same. Can we assume that Item #9 is ""Service Design Description (SDD) - Final "" instead of the ""Draft"" ? Same for Item #4 & #10 Can we assume that item #10 is ""Service Testing Plan (STP) - Final "" instead of the ""Draft"" ?"	Yes.	**Amended**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
T.90	N/A	Follow up to T.59 above (asked verbally at the Bidders' Conference): Will you be looking for the circuits to be tested at an EVC level from the P Core router, or from the NTE provided by the contractor?	The SOW is clear in stating that: 1) circuits will be tested at an EVC level from the NTE, during the Site Installation and Readiness Testing (SIRT, see SI-44). 2) circuits will again be tested from the PFE (P-Core Routers), during the Provisional Service Acceptance Testing (see SI-55)	**No**
T.91	N/A	Question asked verbally at the Bidders' Conference: What are contractor's responsibility in rerouting traffic to achieve the SLA figures based on the construct of P-Core?	The answer to T.64 clarifies in part the answer to this. Although there are two physical P-Core routers at each location, these are managed by NATO and not subject of the TCS SLA. NATO provides the interconnection between the two internally. From the perspective of the bidders, the two P-Core routers shall be treated as a single one, hence consider that the two lines terminate on one single equipment.	**No**
T.92	SI-10	The requirement includes the MEF-53-Ethernet-Services-Qualification-Questionnaire.xlsx , in a fully filled in state. The MEF template covers a wide range of service types and geographies. Should the bidder understand that an acceptable "fully filled in state" is limited to the completion of fields relevant to the context of the submitted bid? Please clarify.	Yes.	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
T.93	SD-20	The requirement calls for direct access to the Contractor's Trouble-ticketing system. Can the requirement be fulfilled with access to a trouble-ticketing system that is managed by the Contractor, but it not necessarily the Contractor's core TTS ?	Yes. The requirement has been amended accordingly.	**Amended**
T.94	Section 3 [55], 3.1.4 SD34, 3.1.5 – SD-37, A.2 SVC- 7	The Purchaser requests that the processes follow ITIL and are in alignment/implemented in accordance with ISO 20000. Can the purchaser confirm whether this is a requirement to hold ISO 20000 for these processes, or only to follow ISO 20000 methodology as part of ISO 9000, with the contractor not required to hold – or be assessed – against ISO 20000 for the processes?	Adherence to ISO 20000 methodologies is sought. The Contractor is not required to hold or be assessed against ISO 20000.	**No**
T.95	NCIA answer to question T.5 (SVC-43)	Please clarify if the single link availability requirement of 99,9% implies: a) A full end-to-end primary and secondary path per EPL including a dual line access with path diversity on each Core node, or b) A single line access per EPL on each Core Node with path protection in the provider Backbone. NB: A line access is a physical local loop between customer location and the point of presence of the provider.	It does not imply any option in particular. The Bidder needs to provide a design that demonstrates that 99.9% is achieved, end-to-end. Any design involving a single line access per EPL, between the customer location and the PoP of the provider, will need to factor the availability of that segment into the total availability calculations.	**No**

TECHNICAL CLARIFICATION REQUEST				
Serial No.	**IFB Ref.**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**Amendment to IFB[1]**
T.96	NCIA answer to question T.78 and T.79 (Appendix A.5, Appendix A.6, SVC-39)	Please confirm that Out of Band Management to monitor, collect SNMPv3 polling and configure NTEs on dedicated links is not allowed. If so, please note: - It should be considered as new requirement and amended in the IFB as no SOW mentioned it until Amendment N°1. What is the benefit expected for NCIA? - Please note that this new requirement could potentially exclude some bidders	Confirmed, for security reasons, as the availability of the Transport Core in full becomes contingent upon the degree of hardening of that network against intrusions and possible exploits of vulnerabilities affecting any applications and/or network services (e.g. VPN) used for that purpose. SOW has been amended: "The use of ad-hoc management networks for the purposes of monitoring and controlling any network termination equipment deployed at the Purchaser's locations under this Contract is not allowed".	**Amended**

NATO Communications and Information Agency
Agence OTAN d'information et de communication

IFB-CO-14797-CTD

Prospective Contract for the Provision of Transport Core Services (TCS)

Book II Part II
Prospective Contract Special Provisions

Table of Contents

1 ALTERATIONS, MODIFICATIONS AND DELETIONS OF THE CONTRACT GENERAL PROVISIONS

1.1 Article 2 “ORDER OF PRECEDENCE” replaces Clause 1 “Order of Precedence” of the Contract General Provisions.

1.2 Article 4 “TYPE OF CONTRACT AND PRICE BASIS” augments Clause 7 “Firm Fixed Price Contract” of the Contract General Provisions.

1.3 Article 8 “PRICING OF CHANGES, AMENDMENTS, OPTIONS, FOLLOW-ON CONTRACTS AND CLAIMS” augments Clause 19 “Pricing of Changes, Amendments and Claims” of the Contract General Provisions.

1.4 Article 9 “PARTICIPATING COUNTRIES” augments Clause 9 “Participating Countries” of the Contract General Provisions.

1.5 Article 14 “SECURITY” augments Clause 11 “Security” of the Contract General Provisions.

1.6 Article 15 “ACCEPTANCE OF DOCUMENTATION AND SERVICE” augments Clause 21 “Inspection and Acceptance of Work” of the Contract General Provisions.

1.7 Article 15 “ACCEPTANCE OF DOCUMENTATION AND SERVICE” augments Clause 22 “Inspection and Acceptance of Documentation” of the Contract General Provisions.

1.8 Article 16 “INVOICES AND PAYMENT” augments Clause 25 “Invoices and Payment” of the Contract General Provisions.

1.9 Article 17 “LIQUIDATED DAMAGES” augments Clause 38 “Liquidated Damages” of the Contract General Provisions.

1.10 Article 23 “PERFORMANCE GUARANTEE” replaces sub-clauses 8.1 and 8.5 “Performance Guarantee” of the Contract General Provisions.

1.11 Article 26 “SUB-CONTRACTS” augments Clause 10 “Sub-contracts” of the Contract General Provisions.

2 ORDER OF PRECEDENCE

2.1 This Article replaces Clause 1 of the Contract General Provisions.

2.2 In the event of any inconsistency in language, terms or conditions of the various parts of this Contract, precedence will be given in the following order:

2.2.1 The Signature Page;

2.2.2 The Contract Schedules, Part I;

2.2.3 The Contract Special Provisions, Part II;

2.2.4 The Contract General Provisions, Part III;

2.2.5 The Statement of Work, Part IV;

2.2.6 The Annexes to the Statement of Work:

2.2.7 The Service Level Agreement, Part V.

3 SCOPE OF WORK

3.1 The Contractor shall provide high capacity and resilient Transport Core Services (TCS) in support of the High Speed Core (HSC) of the NATO Communications Infrastructure, interconnecting the sites of Mons (BEL), Lago Patria (ITA) and Evere (BEL), in fulfilment of the requirements as defined in the Contract Part IV - Statement of Work, including its Appendices.

3.2 The TCS services are to be provided based on the Contractor-Owned / Contractor-Operated (COCO) service provisioning model. The Contractor (or its subcontractors) therefore owns and manages the service assets including hardware and software and their life cycle (upgrades and technology refreshes). The Contractor operates the service and provides all levels of support. The Contractor provides the Service Manager and all needed manpower to operate the service within the terms and conditions of the Service Level Agreement (SLA), agreed between the Purchaser and the Contractor, and developed in adherence to the SLA framework provided in Appendix B to the Statement of Work.

3.3 In the context of TSC services, the term ‘Node’ refers to COCO network infrastructure implemented at any of the three Contract sites to deliver communications services. A Node consists of any Network Termination Equipment (NTE) installed by the Contractor at each site, connected to the Purchaser Furnished Equipment (PFE), which corresponds to the P-Core Routers.

3.4 The agreement and signature of this Contract by the Parties neither implies an obligation on either part to extend the Contract beyond the specified scope or terms, nor to prohibit the Parties from mutually negotiating modifications thereto.

3.5 At expiration or termination of the Contract, i.e. end of Transport Core Services delivery and, if required by the Purchaser, the Contractor shall disconnect from the Purchaser’s infrastructure and dismantle any Contractor-owned equipment previously installed and operated in the Purchaser’s premises, at no additional cost to the Purchaser, in accordance with the agreed Service Cessation and Withdrawal Plan (SCWP) as required by the Statement of Work and SSS.

4 TYPE OF CONTRACT AND PRICE BASIS

4.1 This Article augments Clause 7 of the Contract General Provisions.

4.2 This is a Firm Fixed Price Contract.

4.3 The priced Schedule of Supplies and Services of the present Contract (Part I), driven by major Contract Line Items (CLINs), lists all services, their due date, the place of delivery, as well as their fixed rate (where applicable).

4.4 The prices established for every CLIN, including the Optional CLINs, are firm-fixed and **all-inclusive** for the whole Period of Performance of the Contract and for any extensions thereof.

4.5 The total Firm Fixed Price of this Contract includes all the service costs (one-off and recurring) incurred by the Contractor in fulfilment of the CLINs in the Schedule of Supplies and Services, and the requirements in the Statement of Work, in terms of Service Implementation (Section 2), Service Delivery (Section 3) and Project Management (Section 4). This includes all travel, per diem and accommodation costs associated with travels between NATO Locations and the Contractor's own premises, wherever it executes the Contract, and wherever the Contractor considers necessary to execute its tasking, or that is required for the execution of the Contract.

4.6 The Contractor obligates itself to ensure that all the services required by the Contract will be furnished within the Total Contract Price as stated on the Contract Signature Page. The Purchaser assumes no liability for costs incurred by the Contractor in excess of the stated Firm Fixed Price of the Base Contract ([Years 1 to 3] or [Years 1 to 5]), except as provided under other provisions of this Contract.

4.7 The Total Contract Price is Delivered Duty Paid in accordance with the International Chamber of Commerce INCOTERMS 2010 to the destination(s) and at such times as set forth in the Schedule of Supplies and Services. All supplies covered under this Contract, shall be transported to and from all destinations at the responsibility of the Contractor. The Purchaser shall not be liable for any storage, damage, accessorial or any other charges involved in such transporting of supplies.

5 EFFECTIVE DATE OF CONTRACT AND PERIOD OF PERFORMANCE

5.1 The Contract shall come into force at the date specified in the Signature Sheet of the Contract, and such date is referred hereafter as the Effective Date of Contract (EDC).

5.2 The Period of Performance (PoP) of the in-service phase of this Contract is [3] [5] years from the Service Activation (SA) date. SA date shall be one (1) week following Provisional Service Acceptance (PSA), as defined in Section 2.6 of the Statement of Work.

5.3 The Period of Performance may be extended by up to [2+3] [3] consecutive years, by exercise of the Options specified in Article 7 "ADDITIONAL CONTRACT TASKS AND OPTIONS" hereunder.

5.4 Start date of the Optional Years for fixed rate services will be notified to the Contractor at least 3 months prior to the commencement of provision of the services through formal Contract Amendment as detailed under Article 7.3 hereunder.

6 SERVICE LEVEL AGREEMENT (SLA)

6.1 This Article applies to the in-service phase of any Contractor operated service delivered under this Contract, starting with Service Activation after Provisional Service Acceptance.

6.2 In accordance with SOW Section 2.5.1, the Final Draft version of the Service Level Agreement shall be produced by the Contractor within the timelines required in SSS, and shall be subject to approval by the Purchaser as part of the Service Installation Acceptance (SIA) process (SOW Section 2.6). The requirements for draft SLA are provided in SOW Appendix B.

6.3 In accordance with SOW Section 2.5.2, the Final version of the Service Level Agreement shall be produced by the Contractor within 6 weeks from Final Draft delivery, and shall be agreed and approved by the Purchaser as part of the Provisional Service Acceptance process.

6.4 The Service Level Agreement signed between the Parties covers the required parameters of Service Requirements as described in Appendix A of the Statement of Work, as well as all the performance metrics, availability criteria, review periods, service credits and modifications, in adherence to the SLA Framework requirements provided in Appendix B of the Statement of Work.

6.5 If the Contractor fails to deliver or to perform the services within the prescribed availability and performance levels specified in Statement of Work and in the Service Level Agreement, the Contractor shall be charged with Service Credits as described and calculated in the relevant section of the agreed Service Level Agreement and Article 18 below. Service Credits serve as the Purchaser's remedy for the damages directly arising out of the failure to render the Services, or perform the Services as specified in the Statement of Work, without prejudice of Clause 39 (Termination for Default) of the Contract General Provisions.

6.6 The rights and remedies of the Purchaser under this clause are in addition to any other rights and remedies provided by law or under this Contract.

7 ADDITIONAL CONTRACT TASKS AND OPTIONS

7.1 The tasks identified in the Contract Schedule of Supplies and Services as Options are to be intended as options to be exercised by the Purchaser unilaterally and at its sole discretion.

7.2 The Contractor understands that there is no obligation under this Contract for the Purchaser to exercise any of the optional line items and that the Purchaser

bears no liability should it decide not to exercise the options (totally or partially). In no event shall the Contractor engage in the performance of any options without the written consent of the Purchaser Contracting Authority.

7.3 [Years 6, 7 and 8] [Years 4 and 5, plus additional Years 6, 7 and 8] in Part I Schedule of Supplies and Services represent Options to extend the Period of Performance for up to [3] [5] additional periods of 12 months. The Purchaser shall notify the Contractor, by issuing a formal letter, of its intent to exercise this Option within the timelines specified under Article 5.4. For each Option Year exercised, a Contract Amendment will be issued by the Purchaser, to confirm the notification previously provided and obligate an amount of funding for the total Contract value. The Contractor shall continue providing the services required under the Contract and will be compensated at the fixed rates specified for these Options in the Schedule of Supplies and Services.

7.4 In addition to the Contract Options as identified above, the Purchaser reserves the right to order any foreseeable or additional Contract tasks or deliverables, either occasionally or at a further stage in the life of the project, which it deems necessary for the successful completion of the project. Such additional tasks and/or deliverables shall be priced in using the pricing details and rates per CLIN and price category (Labour/Services/Travel/ODC/Rates) provided by the Contractor as part of its Price proposal (Bidding Sheets) and included in this Contract by reference, in accordance with the provisions of Article 8 below.

7.5 The Purchaser may, in writing, place an order for such additional tasks throughout the entire Contract period of performance up until end of Warranty. Such an order may be placed within the framework of this Contract via the issuance of a Contract Amendment, or be formulated via the issuance of a new contractual instrument.

8 PRICING OF CHANGES, AMENDMENTS, OPTIONS, FOLLOW-ON CONTRACTS AND CLAIMS

8.1 This Article augments Clause 19 of the Contract General Provisions.

8.2 The Purchaser may at any time, by written order designated or indicated to be a Change Order, and without notice to the sureties, if any, make changes within the scope of any Contract or Task Order, in accordance with Clause 16 (Changes) of the Contract General Provisions.

8.3 Changes, modifications, follow-on Contracts of any nature, and claims shall be priced in accordance with Clause 19 (Pricing of Changes, Amendments and Claims) of the Contract General Provisions, and with the "Purchaser's Pricing Principles" as set out in the Annex 1 to the Contract General Provisions.

8.4 Contractor’s pricing proposals shall be fair and reasonable and subject to agreement at the time when the change is ordered.

8.5 Contractor price quotations for Contract changes or modifications shall be provided at no cost to the Purchaser and shall have a minimum validity period of six (6) months from submission.

8.6 The pricing information contained in the cost breakdown sheets submitted with the Bidding Sheets, as part of the Contractor's Price Proposal, such as the forward labour rates, overhead and profit rates, will constitute the basis for Contractor's pricing proposals for Changes and Claims, and any future negotiations related to possible future amendments to this Contract. The Contractor will use all reasonable endeavours to maintain the prices specified therein. Changes to these prices shall be accompanied with documentation and explanation of the change.

8.7 Contractor's pricing proposals shall be established in the currency of the Contract as stated on the Signature Page. Prices may also be stated in any currency of the Participating NATO Countries provided that, and only to the extent that, the Contractor has expenses in the currency directly related to the current Contract.

8.8 Each Contractor's pricing proposal shall be accompanied by the certifications required by Clauses 19.6 and 19.7 of the Contract General Provisions.

9 PARTICIPATING COUNTRIES

9.1 This Article augments Clause 9 of the Contract General Provisions.

9.2 The following NATO member nations have agreed to fund this acquisition effort: (in alphabetical order): ALBANIA, BELGIUM, BULGARIA, CANADA, CROATIA, CZECH REPUBLIC, DENMARK, ESTONIA, FRANCE, GERMANY, GREECE, HUNGARY, ICELAND, ITALY, LATVIA, LITHUANIA, LUXEMBOURG, MONTENEGRO, NETHERLANDS, NORTH MACEDONIA, NORWAY, POLAND, PORTUGAL, ROMANIA, SLOVENIA, SLOVAKIA, SPAIN, TURKEY, THE UNITED KINGDOM and THE UNITED STATES.

9.3 The Contractor may issue sub-contracts to firms and purchase from qualified vendors from any participating NATO member nation. None of the work, including project design, labour and services, shall be performed other than by firms from and within Participating Countries, as per NATO policy.

9.4 The Contractor shall notify in writing to the Purchaser immediately upon being informed of any change in the nationality of its Sub-contractor(s) or vendor(s) which would prevent the Contractor from further complying with Article 9.3 above. Upon receipt of this information from the Contractor, the Purchaser may, within three months from this notification, require the Contractor to find an alternate subcontractor or vendor, complying with the requirements set out in Article 9.3 above.

9.5 Unless authorised by NATO Policy, no material or items of equipment down to and including identifiable sub-assemblies delivered or used under this Contract shall be manufactured or assembled by a firm other than from and within a Participating Country. This applies to (Sub)Contractor/Third Party-Owned equipment as well.

9.6 The Intellectual Property Rights (incl. (Sub)Contractor/Third Party-Owned IPR) to all designed documentation and system operating software shall reside in Participating Countries, and no license fee, or royalty charges shall be paid by the Contractor to firms, individuals or governments other than within the Participating Countries community.

10 CONTRACT ADMINISTRATION

10.1 The Purchaser is the NATO CI Agency (NCI Agency). The Purchaser is the Point of Contact for all Contractual and Technical issues. The Purchaser reserves the right to re-assign this Contract to a representative(s) for administrative purposes, in whole or in part, provided that the Purchaser shall always be responsible for its obligations under the Contract and for actions or lack of actions of its assigned administrator. The Purchaser undertakes to advise the Contractor in writing whenever this right is to be exercised.

10.2 The Contractor shall accept Contract modifications only in writing from the Purchaser's Contracting Authority.

10.3 All notices and communications between the Contractor and the Purchaser shall be written and conducted in English. Contract modifications only become valid when received in writing from the General Manager, NCI Agency, and/or the NCI Agency Contracting Authority.

10.4 Formal letters and communications shall be personally delivered or sent by mail, registered mail, courier or other delivery service, to the official Points of Contact quoted in this Contract. Fax, email or other electronic means may be used to provide an advance copy of a formal letter or notice which shall subsequently be delivered through the formal communications means.

10.5 Informal notices and informal communication may be exchanged by any other means, including telephone or email. All informal communication must be confirmed by a formal letter or other formal communication to be contractually binding.

10.6 All notices and communication shall be effective upon receipt.

10.7 Official Points of Contact (POC) are:

PURCHASER

Contracting Authority:

NCI Agency
Acquisition Directorate
Boulevard Léopold III
B-1110 Brussels
Belgium

POC: Ms Viktorija Navikaitė
Contracting Officer
Tel: +32 2 707 8210
Fax: +32 2 707 8770
E-mail viktorija.navikaite@ncia.nato.int

Technical matters:

NCI Agency
NSII
Building 302, SHAPE
B-7010-Mons
Belgium

POC:
Project Manager
Tel:
Fax:
E-mail:

CONTRACTOR

Contractual matters:

Company Name
Address

POC:
Tel:
Fax:
E-mail

Technical matters:

Company Name
Address

POC:
Tel:
Fax:
E-mail:

11 TECHNICAL DIRECTION

11.1 The Contract will be administered by the Purchaser in accordance with the Article 10 of these Contract Special Provisions.

11.2 Contractor's personnel working on this Contract shall perform the effort within the general scope of work identified in the Statement of Work. This effort will be directed on a more detailed level by the Purchaser's Project Manager identified under Article 10.7, who will provide detailed tasking and instruction on how to proceed.

11.3 The Purchaser reserves the right to assign a Technical Representative(s) who will monitor work in progress and provide Contractor personnel with instructions and guidance (within the general scope of work) in performance of their duties and working schedule.

11.4 Neither the Purchaser's Project Manager, nor the Technical Representative(s) do not have the authority to change the terms of the Contract or to increase the overall cost, duration or level of effort of the Contract.

11.5 In case the Contractor has reasons to believe that any technical direction received from the Project Manager or the Technical Representative(s) constitutes a change to the terms, conditions and/or specifications of the Contract, the Contractor shall immediately inform in writing the NCI Agency Contracting Authority, who will either confirm or revoke such direction within two weeks after notification by the Contractor.

11.6 If such direction is confirmed as a change, this change will be formalised by written amendment to the Contract pursuant to Clause 16, "Changes", of the NCI Agency Contract General Provisions.

11.7 Failure of the Contractor to notify the NCI Agency Contracting Authority of the direction constituting change of the Contract, within the timelines specified in Clause 16.9 of the NCI Agency Contract General Provisions, will result in a waiver of any claims pursuant to such change.

11.8 All changes to the project management documentation, including the implementation schedules, agreed between the parties shall bear a formal version number and a date from which the change applies.

11.9 Notwithstanding the above, project management documentation, particularly any implementation schedule such as Project Management Plan, shall not affect the original delivery dates as specified in the Schedule of Supplies and Services, nor waive the associated Liquidated Damages.

11.10 The Purchaser will bear no liability for changes to the Contract which are not expressly authorized by the Contracting Authority in writing.

11.11 Similarly the Purchaser shall not be liable for costs incurred by the Contractor resulting from changes in Contract performance authorized by other than the Contracting Authority.

12 KEY PERSONNEL

12.1 The individuals listed below are considered to be key to the performance of this Contract and may not be replaced by the Contractor with substitute personnel without the prior written approval of the Purchaser. The Key Personnel are as follows:

Service Implementation Stage of the Contract:

POSITION	NAME
Project Manager (PM)	[*To be completed at award*]
Deputy Project Manager	[*To be completed at award*]
Technical Lead/Designer	[*To be completed at award*]
Service Implementation Manager	[*To be completed at award*]
Site Installation Team Leaders	[*To be completed at award*]

Test Director	[*To be completed at award*]
Quality Assurance Manager	[*To be completed at award*]

Service Delivery stage of the Contract:

POSITION	NAME
Service Manager (SM)	[*To be completed at award*]
Technical Lead/Designer	[*To be completed at award*]
Service Desk Director	[*To be completed at award*]

12.2 The Contractor's key personnel assigned to the present Contract shall remain working on the Contract for as long as required by the terms of the present Contract. However, in the event where the Contractor has no control over the individual's non-availability (e.g., resignation, sickness, incapacity, etc.), the Contractor shall notify the Purchaser of the prospective vacancy with no delay, and must nominate, with no additional costs for the Purchaser, a substitute(s) of equivalent or higher qualification and experience within 15 working days of the date at which the Contractor has knowledge of the loss of service of such key personnel. The replacement personnel shall be made available for the Contract upon Purchaser acceptance of the proposed substitute.

12.3 The Purchaser may consider any application raised by the Contractor for changes in the key personnel, provided that all the following conditions are met:

i. The Contractor shall guarantee an overlap/handover period of minimum two (2) weeks at no additional cost to the Purchaser,
ii. The CV of the replacement personnel is provided, which allows the Purchaser to assess whether the proposed substitution meets the conditions related to the skill and experience requirements of the key personnel identified in the Statement of Work,
iii. The corporate knowledge of the team is preserved after the replacement.

12.4 The Purchaser will confirm any consent given to a substitution in writing through an Amendment to the Contract stating the effective date of change of personnel, and only such written consent shall be deemed as valid evidence of Purchaser consent.

12.5 The Purchaser has the right to refuse any proposed substitution if not meeting the qualifications and request the Contractor to offer another qualified individual in lieu thereof.

12.6 The Purchaser reserves the right to reject a Contractor's staff member after acceptance of a Contractor's staff member on the basis of his/her CV if the individual is not providing the required level of support. The Purchaser will inform the Contractor in writing in case such a decision is taken and the Contractor shall propose and make another staff member available within three working days after the written notification, at no additional costs to the Purchaser.

12.7 Delays by the Contractor in replacements exceeding two weeks and causing a lower level of Contractor effort and/or performance will be penalised in accordance with Clause 38 of Contract General Provisions.

12.8 In addition to the Article 12.6 above, if the Contractor is unable to nominate and/or replace the lost personnel within the timeframe mentioned in Article 12.2 above, the Purchaser may conclude that the loss of the Key Personnel endangers progress under the Contract to the extent that the Purchaser may resort to the Clause 39 – "Termination for Default" of the Contract General Provisions for redress of the situation.

13 INDEPENDENT CONTRACTOR

13.1 The Personnel provided by the Contractor are at all times employees of the Contractor and not the Purchaser. In no case shall Contractor personnel act on behalf of or as an agent for NATO or any of its bodies. In no way shall the Contractor personnel claim directly or indirectly to represent NATO in an official capacity or claim themselves to be NATO employees.

13.2 The Purchaser shall not be responsible for securing work permits, visas, leases nor tax declarations, driving permits, etc., with national or local authorities.

13.3 Contractors personnel employed under this Contract are not eligible for any diplomatic privileges or for NATO employee benefits.

13.4 The Contractor is responsible for providing the necessary insurance for his personnel and equipment as needed in the area of operations and for performing the Contract, without any cost to the Purchaser.

13.5 The Contractor shall inform his employees under this Contract of the terms of the Contract and the conditions of the working environment.

14 SECURITY

14.1 This Article augments Clause 11 of the Contract General Provisions.

14.2 The security classification of this Contract is "NATO UNCLASSIFIED".

14.3 In the performance of all works under this Contract it shall be the Contractor's responsibility to ascertain and comply with all applicable NATO security regulations as implemented by the Purchaser and by the local sites concerned, as per Appendix E the Statement of Work (Security Requirements).

15 ACCEPTANCE OF DOCUMENTATION AND SERVICE

15.1 This Article augments Clauses 21 and 22 of the Contract General Provisions.

15.2 Acceptance of Documentation delivered under this Contract will be made according to Clause 22 – "Inspection and Acceptance of Documentation" of the Contract General Provisions and Contract Statement of Work Sections 2.7 "Service Implementation Documentation" and 3.6 "Service Delivery Documentation".

15.3 Acceptance of Service delivered under this Contract will be made according to Clause 21 – "Inspection and Acceptance of Work" of the Contract General Provisions and Section 2.6. "Services Acceptance" of the Statement of Work.

15.4 The acceptance by the Purchaser of the Contractor's design documentation required by this Contract signifies that the documents delivered appear logical and consistent. The acceptance does not constitute an endorsement or approval of the design by the Purchaser and does not relieve the Contractor of the obligation to meet the performance requirements of this Contract in the event that the design eventually proves to be non-compliant in site testing and follow-on service delivery.

15.5 As per SOW Para. 2.6, Service Acceptance shall be conducted in three steps, namely Services Installation Acceptance (SIA), Provisional Services Acceptance (PSA) and Final Services Acceptance (FSA). Acceptance by FSA shall be conclusive except as regards latent defects, fraud or such gross mistakes or negligence as to amount to wilful intent.

16 INVOICES AND PAYMENT

16.1 This Article augments Clause 25 of the Contract General Provisions.

16.2 Following the Service Acceptance as per SoW Section 2.6 procedures and Article 15 above, the Purchaser will inform the Contractor, in writing, to submit an invoice for the payment of the related CLIN [1] [6] (Service Implementation) and CLIN [3] [8] (Project Management). The invoice shall be issued by the Contractor within fifteen (15) calendar days from such Purchaser's written acceptance. Payment shall be made for the full amount of the firm fixed price of CLINs [1] [6] and [3] [8], as specified in the SSS.

16.3 The Contractor shall submit an invoice quarterly in arrears for Transport Core Services rendered under CLIN [2] [7], as well as for the services under Optional CLINs [4 and 5] [9], if exercised, supported by reports on the availability and performance of those services (Service Delivery Performance Reports, SDPR) as per Section 3.6.2 of Part IV Statement of Work. Only the services accepted by the Purchaser through the signature of SDPRs and Minutes of the quarterly Service Performance Review Meetings (SPRM) can be invoiced by the Contractor. The quarterly invoices supported by accepted SDPRs shall be issued by the Contractor not later than within fifteen (15) calendar days from the last day of the quarter.

16.4 The Contractor shall render all invoices in a manner, which shall provide a clear distinction between the costs associated with each CLIN, consistent with their separation in the Schedule of Supplies and Services of this Contract.

16.5 Where applicable, charges shall be at the Unit Prices and currencies specified in the SSS multiplied by the number of units delivered. Supporting documentation detailing the units delivered shall be attached to the invoice.

16.6 All invoices must reference the following information:

a) Contract number CO-14797-TCS;

b) Contract Amendment number (if any);

c) Purchase Order number specified in the Contract or Amendment Signature Sheet;

d) The identification of the performance rendered in terms of Contract Line Item Numbers (CLINs) and relevant sites;

e) Number of units, price per unit, currency;

f) Bank account details for international wire transfers (SWIFT, BIC, IBAN);

g) Payment conditions in line with the Contract (Article 16.15 below);

h) The certificate below that shall be signed by a duly authorised company official on the designated original:

"*I certify that the above invoice is true and correct, that the delivery of the above described items has been duly effected and/or that the above mentioned services have been rendered and the payment therefore has not been received.*

*Order placed for official use. Exemption from VAT Article 42,§3&3*of VAT Code for Belgium or Article 151, §1b of the Council Directive 2006/112/EC dd. 28 November 2006 on intra-community purchases and/or services.*"

16.7 If during any Quarter, the Purchaser has exercised Option(s) as per Article 7, the Invoice shall provide the CLIN and the quantities provided multiplied by the Unit Price.

16.8 No payment shall be made with respect to undelivered supplies, works not performed, services not rendered and/or incorrectly submitted invoices.

16.9 No payment shall be made for additional items delivered that are not specified in the contractual document (Contract Part I SSS).

16.10 Payments for services and deliverables shall be made in the currency stated by the Contractor for the relevant Contract Line Item.

16.11 The Purchaser is released from paying any interest resulting from any reason whatsoever.

16.12 The invoice amount shall be exclusive of VAT and exclusive of all Taxes and Duties as per Clause 26 “Taxes and Duties” of the Contract General Provisions.

16.13 The invoices shall be submitted by email to the following POCs:

a) accountspayable@ncia.nato.int;

b) Contracting Authority under Article 10.7.

16.14 Unless otherwise specified, the Contractor shall prepare and submit its invoices solely by electronic means (without paper submission). Contractor’s invoices submitted by electronic means shall be in a static, non-modifiable format (such as PDF, other). The Contractor shall ensure the accuracy, authenticity of the origin and legibility of any invoice submitted by electronic means.

16.15 NCI Agency will make payment within thirty (30) days of receipt by the NCI Agency of a properly prepared and documented invoice.

17 LIQUIDATED DAMAGES AND LATE DELIVERY PENALTIES

17.1 This Article augments Clause 38 of the Contract General Provisions.

17.2 Time is of the essence for this Contract. Therefore, if the Contractor fails to deliver the services for the Service Implementation (CLIN [1] [6]) and Project Management (CLIN [3] [8]) stages as per SOW requirements (Sections 2 and 4) and within the time specified in the Schedule of Supplies and Services (SSS), or any agreed extension thereto, the actual damage to the Purchaser for the delay or loss will be difficult or impossible to determine. The below provisions shall apply to determine the damage to the Purchaser.

17.3 In case the Contractor fails to meet the schedule requirements up to and including Site Installation Acceptance (SIA), in lieu of actual damages the Contractor shall pay to the Purchaser, for each week of delinquency in achieving the requirements, **Liquidated Damages** (LDs) of One Per Cent (1.00%) per week of the total price for [CLINs 1 & 3] [CLINs 6 & 8]. Liquidated Damages shall be payable to the Purchaser from the first week of delinquency in delivery and shall accrue at the afore-mentioned rate to a maximum of Fifteen Per Cent (15%) of the total price for [CLINs 1 & 3] [CLINs 6 & 8].

17.4 In case the Contractor fails to meet the schedule requirements following SIA, up and including Service Activation, a **Late Delivery Penalty** (LDP) shall be paid by the Contractor to the Purchaser. LDP shall be equal to the monthly service rate for all sites of the Contract. In the case the Service Activation delay exceeds 20 calendar days, the Contractor shall pay LDP amounting to the monthly service rate for each 20 days additional delay.

17.5 In addition to the above, the Purchaser may terminate this Contract in whole or in part, as provided in paragraph 39.1 of Clause 39 – "Termination for Default" of the Contract General Provisions, and in that event the Contractor shall be liable to pay the excess costs provided in paragraph 39.5.

17.6 The amount of Liquidated Damages and Penalties due by the Contractor shall be recovered by the Purchaser in the following order of priority:

- By deducting such damages from the amounts due to the Contractor against the Contractor's invoices.
- By proceeding against any surety or deducting from the Performance Guarantee if any.
- By reclaiming such damages through appropriate legal remedies.

18 SERVICE CREDITS

18.1 This Article applies to the In-Service phase of any Service implemented under this Contract.

18.2 If the Contractor fails to meet the Service Requirements (including the levels of performance) as specified within Appendix A to the Statement of Work (SoW) and in the Service Level Agreement, the Contractor shall be charged with **Service Credit** as described and calculated in Appendix B of the Statement of Work (SLA Framework) and as reflected in the final Service Level Agreement between the Contractor and the Purchaser.

18.3 The aim of credit calculation is to identify the service credits (in the currency of the Contract) to be calculated in the case of a Service that does not meet the Purchaser's Service Requirements as described in Appendix B of the Statement of Work (SLA Framework).

18.4 Service Credits are the Purchaser's remedy for the damages directly arising out of the failure to deliver or perform the Services as specified in the SLA. The application of Service Credits does not prejudice other Purchaser's rights under the Contract, such as Termination for Default under Clause 38 of the General Provisions.

18.5 Service Credit status shall be contractually agreed monthly between the Purchaser and the Contractor upon submission of the Service Delivery Performance Report by the Contractor.

18.6 Monthly Service Credits shall not exceed 100% of the respective total value of services that month. These service credits shall accrue automatically and without any further notice being required.

18.7 When the duration of the degraded period, or the link unavailable period, or the node unreachable period is longer than 72 hours, SOW Appendix B foresees additional remedies for which the Contractor shall be liable.

18.8 The amount of Service Credits due by the Contractor shall be recovered by the Purchaser by deducting such Service Credits from the quarterly invoice for which the service level requirements were not met.

19 SUPPLEMENTAL AGREEMENT(S), DOCUMENTS AND PERMISSIONS

19.1 The Contractor has submitted all relevant draft supplemental agreement(s), documents and permissions prior to Contract award, the execution of which by the Purchaser is/are required by national law or regulation. If any supplemental agreements, documents and permissions are introduced after Contract award, and it is determined that the Contractor failed to disclose the requirement for the execution of such agreement from the Purchaser prior to Contract signature, the Purchaser may terminate this contract for default in accordance with Clause 39 – “Termination for Default” of the Contract General Conditions.

19.2 Supplemental agreement(s), documents and permissions, the execution of which by the Purchaser is/are required by national law or regulation and that have been identified by the Contractor prior to the signature of this Contract, but have not yet been finalised and issued by the appropriate governmental authority, are subject to review by the Purchaser. If such supplemental agreement(s), documents and permissions are contrary to cardinal conditions of the signed Contract between the Parties, and the Purchaser and the appropriate governmental authority cannot reach a mutual satisfactory resolution of the contradictions, the Purchaser reserves the right to terminate this Contract and the Parties agree that in such case the Parties mutually release each other from claim for damages and costs of any kind, and any payments received by the Contractor from the Purchaser will be refunded to the Purchaser by the Contractor.

20 COMPREHENSION OF CONTRACT AND SPECIFICATIONS

20.1 The Contractor warrants that he has read, understood and agreed to each and all terms, clauses, specifications (including drawings) and conditions specified in the Contract and that this signature of the Contract is an acceptance, without reservations, of the said Contract terms within their normal and common meaning.

20.2 The specifications set forth the performance requirements for the Contractor’s proposed work as called for under this Contract. Accordingly, notwithstanding

any conflict or inconsistency which hereafter may be found between achievement of the aforesaid performance requirements and adherence to the Contractor's proposed design for the work, the Contractor hereby warrants that the work to be delivered will meet or exceed the availability and performance requirements of the said specifications.

20.3 The Contractor hereby acknowledges that he has no right to assert against the Purchaser, its officers, agents or employees, any claims or demands with respect to the aforesaid specifications as are in effect on the date of award of this Contract:

20.3.1 based upon impossibility of performance, defective, inaccurate, impracticable, insufficient or invalid specifications, implied warranties of suitability of such specifications, or

20.3.2 otherwise derived from the aforesaid specifications,

20.3.3 and hereby waives any claims or demands so based or derived as might otherwise arise.

20.4 Notwithstanding the "Changes" Clause or any other Clause of the Contract, the Contractor hereby agrees that no changes to the aforesaid specifications which may be necessary to permit achievement of the performance requirements specified herein for the Contractor's proposed work shall entitle the Contractor either to any increase in the fixed price as set forth in this Contract or to any extension of the delivery times for the work beyond the Period of Performance in the Schedule of Supplies and Services.

21 RIGHTS IN TECHNICAL DATA

21.1 For the purpose of this clause, "technical data" is defined to mean all recorded information of a technical nature to support maintain or operate the services being purchased under this Contract. It is to include, but is not limited to, technical literature such as text in manuals, drawings, design documents, equipment instructions, illustrations, schematics or wiring diagrams, test procedures, parts lists, computer software etc.

21.2 The Contractor hereby grants to NATO the unrestricted rights without further payment to use, duplicate or disclose, in whole or in part, any technical data, resulting directly from the performance of this Contract for NATO purposes.

21.3 The Contractor shall assume all liability and indemnify the Purchaser, its officers, agents and employees against liability, including costs for the infringement of any patents or copyright in force in any countries arising out of the manufacture, services performed or delivery of supplies, or out of the use or disposal by or for the account of the Purchaser of such supplies. The Contractor shall be responsible for obtaining any patent or copyright licences necessary for the performance of this Contract and for making all other arrangements required to

indemnify the Purchaser from any liability for patent or copyright infringement in said countries.

22 CARE AND DILIGENCE OF PROPERTY - RISK OF LOSS

22.1 The Contractor shall use reasonable care to avoid damaging building, equipment, and vegetation (such as trees, shrub and grass) on the work site.

22.2 If the Contractor damages any such building or equipment, it shall repair the damage as directed by the Purchaser and at no expenses to the Purchaser. If it fails or refuses to make such repair or replacement, the Contractor shall be liable for the cost thereof, which may be deducted from the Contract price.

22.3 The Purchaser shall exercise due care and diligence for Contractor's and Purchaser's equipment, tools and materials at each Node (site) supplied and/or used for the performance of this Contract. Notwithstanding anything to the contrary herein contained in this Contract, the Purchaser will not assume any liability for damages occurring to or occasioned by said equipment, tools and materials except for (i) gross negligence or wilful misconduct of the Purchaser or his servants, agents or subcontractors or (ii) loss due to events covered under Article 24 FORCE MAJEURE.

23 PERFORMANCE GUARANTEE

23.1 This Article replaces the Contract General Provisions Clause 8 – "Performance Guarantee" sub-clauses 8.1 and 8.5.

23.2 As a guarantee of performance under the Contract, the Contractor shall deposit with the Purchaser within thirty (30) calendar days from the Effective Date of Contract a bank guarantee (the "Performance Guarantee") denominated in the currency of the Contract, to the value of ten per cent (10%) of the total Contract price specified in the Contract Signature Sheet and Article 4 above. In case the Part I Schedule of Supplies and Services Option to extend the Period of Performance is exercised under the provision 7.3 above, the value of the Performance Guarantee shall be adjusted to ten per cent (10%) of the Total Value of the Contract for the Optional Year.

23.3 The Contractor shall request in writing relief from the Performance Guarantee upon expiration of the Period of Performance as specified under Article 5 above, and such relief may be granted by the Purchaser.

23.4 The Purchaser shall not bear any liability related to financial guarantees, which the Contractor is required to provide under this Contract.

24 FORCE MAJEURE

24.1 If the performance of this Contract, or any obligation hereunder is prevented, restricted or interfered with by reason of fire, flood, earthquake, unusually severe weather, utility outages, explosion or other casualty or accident, strikes or labour disputes, freight embargoes, epidemics, quarantine restrictions, war or other violence, including acts of terrorism, any law, order, proclamation, regulation, ordinance, demand or requirement of any governmental agency, or any other act, event or condition whatsoever beyond the reasonable control of the affected Party, the Party so affected, upon giving prompt notice to the other Party providing sufficient details sustaining the force majeure cause, and obtained the other Party's acknowledgement and approval of force majeure cause, which will be provided in a timely manner, shall be excused from such performance to the extent of such prevention, restriction or interference, provided, however, that the Party so affected shall take all reasonable steps to avoid or remove such cause of non-performance or provide proposals for alternative ways to resume performance, and shall resume performance hereunder with dispatch whenever such causes are removed.

24.2 For the Force Majeure clause to be enforceable, the claimant Party shall provide evidence that the event was unpredictable, unknown and render the performance of the Contract.

24.3 Such uncontrolled causes do not constitute a reason for equitable adjustment as both Parties are affected. Interruptions due to such causes will therefore not be considered as means to request additional costs. In addition, any performance issues, missed deliverables and/or period from missed milestones preceding the documented force majeure event impact shall not be excusable under such circumstances.

24.4 The Contractor shall not be charged with Liquidated Damages, Penalties or Service Credits when the delay arises out of causes beyond the control and without the fault or negligence of the Contractor as defined in paragraph 39.6 of Clause 39 – "Termination for Default" of the Contract General Provisions. In such event, subject to the Disputes and Arbitration Clause, the Purchaser shall ascertain the facts and extent of the delay, and shall extend the time for performance of the Contract when in the Purchaser's judgement the findings of fact justify an extension.

24.5 In addition to the Clause 36.3 of the Contract General Provisions, no Contractor claim shall be allowed for delays due to the causes listed under Art. 24.1 above, should the failure to perform is beyond the control and without the fault or negligence of the Purchaser. The Contracting Authority may order a suspension or work stoppage for a reasonable period of 60 days to assess the situation and determine its course of action. During this period of work stoppage or suspension, each party bears the burden of their own costs as the cause for delay was beyond the control of both parties.

25 LANGUAGE OF WORK

25.1 The working language of the Project Team is English and the associated technical documents are delivered in English. All Contractor‘s personnel engaged in this project shall have a thorough knowledge of the English language.

25.2 Failure to satisfy this requirement may be the basis for Purchaser’s request of change of personnel.

26 SUB-CONTRACTS

26.1 This Article augments Clause 10 of the Contract General Provisions.

26.2 The Contractor warrants the following:

26.2.1 that it and its Sub-Contractors have been duly authorised to provide the required services and do business with NATO;

26.2.2 that it and its Sub-Contractors have obtained or shall obtain all necessary licenses and permits required in connection with the Contract;

26.2.3 that it and its Sub-Contractors shall fully comply with all the laws, decrees, labour standards and regulations that are applicable during the performance of the Contract;

26.2.4 that no claim for additional moneys with respect to any authorisations to perform shall be made upon NATO;

26.2.5 that the Contractor has flown down to the subcontracts the prime Contract provisions deemed necessary to meet the requirements of the Contract (eg security, liabilities, termination terms etc).

27 OPTIMISATION

27.1 The Contractor is encouraged to examine methods and technology that may increase efficient operation and management of the system(s) on which the required services are provided to the Purchaser, thus reducing operating and manpower costs and the overall cost to the Purchaser.

27.2 The Contractor may, at any time during the Period of Performance, introduce Engineering Change Proposals (ECPs) offering innovations and/or technology insertion with a view towards reducing the overall cost to the Purchaser.

27.3 Any such ECP submitted shall cite this Clause as the basis of submission and provide the following information:

27.3.1 A detailed description of the technical changes proposed, the advantages, both long and short term, and an analysis of the risks of implementation;

27.3.2 A full analysis of the prospective savings to be achieved in both equipment and manpower, including, as appropriate, utility and fuel consumption and NATO manpower, travel, etc.;

27.3.3 A full impact statement of changes that the Purchaser would be required to make, if any, to its operational structure and management procedures;

27.3.4 A fully detailed proposal of any capital investment necessary to achieve the savings;

27.3.5 A schedule of how the changes would be implemented with minimal negative impact to on-going performance and operations.

NATO Communications and Information Agency
Agence OTAN d'information et de communication

Provide Transport Core Services (TCS)

Short Title: Project TCS

Book II - Part IV

Statement of Work (SOW)

Reference:	IFB-CO-14797-TCS
Publication Date:	30/09/2020
Classification:	NATO UNCLASSIFIED
Status:	AMD 2
Version:	1.2
No. of pages	76

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TABLE OF CONTENTS

INDEX OF FIGURES

INDEX OF TABLES

Section 1 Introduction

1.1 Background

[1] This project and the prospective Contract are intended to upgrade the transmission bearer that supports the so-called High Speed Core (HSC) of the NATO Enterprise.

[2] The HSC interconnects the three core nodes of the NCI, in support of data transfers between Data Centres and the corresponding NCI Core nodes, as well as traffic from the NCI Edge Nodes, transiting over the NCI Core nodes.

[3] For transport purposes, the HSC will rely on Metro compliant (MEF 6.3) "Ether Virtual Connect" (EVC) services of the type "Ether Private Line-1" (EPL1) at 100 Gbps, featuring uptimes higher than 99.9% (per EPL). These services are hereafter referred to as Transport Core Services (TCS).

[4] This SOW describes the TCS to be implemented and delivered under the prospective Contract, in support of the HSC, at the sites of Mons (BE), Lago Patria (ITA) and Evere (BEL). These sites will be interconnected in a full mesh EPL topology, with each node connected to the other two nodes over two independent links, each link consisting of ingress and egress EPL, featuring the same data rates and performance.

[5] The TCS will solely rely on Contractor-owned and Contractor-Operated (CO-CO) solution.

[6] This infrastructure will interconnect NATO-owned and NATO-operated (NO-NO) redundant P-Core Routers of the HSC, at each Core Node (see CO-CO and NO-NO boundaries in Figure 1-1 below). These are hereafter referred to as PCR clusters.

[7] Each PCR cluster consists of two routers (Cisco NCS 55A2), working in tandem in an active-active configuration.

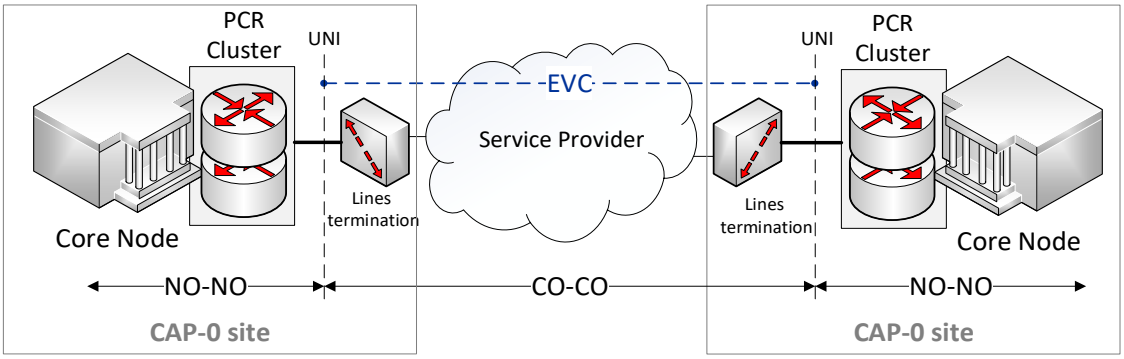


Figure 1-1 CO-CO and NO-NO boundaries for TCS

[8] Between any pair of PCR clusters, EPL performance and availability will be measured per direction, meaning that any outage or degradation affecting any of the EPL will be considered an outage or degradation of the TCS.

1.2 Scope of Work

[9] The work under this Contract and the requirement under this SOW are organized in three areas, as follows:

1) **Service Implementation**, applicable to the initial stage of the Contract, from Effective Date of Contract (EDC) up to Final Service Acceptance (FSA), and consisting of the following one-off activities, in the same order:
    a) Service Level Requirements Review;
    b) Site Surveys;
    c) Service Design;
    d) Site Installation;
    e) Service Testing;
    f) Service Acceptance;
    g) Service Implementation Documentation;
    h) Service Implementation Review Meetings;
2) **Service Delivery**, applicable to the main stage of the Contract, from PSA onwards, and encompassing the following six recurring activities and processes, to be performed by the Contractor throughout the period of performance of the prospective Contract, i.e.:
    a) Service Operation;
    b) Service Change Management;
    c) Risk Management;
    d) Continuous Service Improvement;
    e) Service Cessation;
    f) Service Extension;
    g) Service Delivery Documentation;
    h) Service Performance Review Meetings.
3) **Project Management**, applicable to the Service Implementation stage of the Contract, from EDC up to Final Service Acceptance (FSA), with requirements covering the following:
    a) Project Management Approach;
    b) Project Management Plan;
    c) Roles and Responsibilities.

[10] Additional requirements are provided through the following appendices:

- Appendix A: Service Requirements;
- Appendix B: Service Level Agreement Framework
- Appendix C: Security Requirements

- Appendix D: Testing Requirements
- Appendix E: Documentation Requirements
- Appendix F: Contract Document Requirements List
- Appendix G: Contract Execution Timeline
- Appendix H: List of Acronyms

1.3 Locations

[11] The locations concerned with this Contract are as follows:

- New NATO HQ (NNHQ), Rue de la Fusée, 70-90, 1130 Brussels, Belgium;
- SHAPE, Casteau, building 185, B-7010 Mons, , Belgium
- Joint Force Command Headquarters, Via Madonna Del Pantano, Lago Patria, 80014Giugliano in Campania (NA), Italy.

1.4 Milestones

[12] Delivery dates, relative to EDC (as weeks after EDC, or WAEDC), and sites for the various milestones and deliverables quoted in this document, are exclusively defined in the Schedule of Supplies and Services (SSS).

[13] Contract shall be implemented in two stages, Service Implementation and Service Delivery. The main milestones and events within each stage are illustrated in the figure below and described hereafter (a more detailed representation is provided in Appendix G).

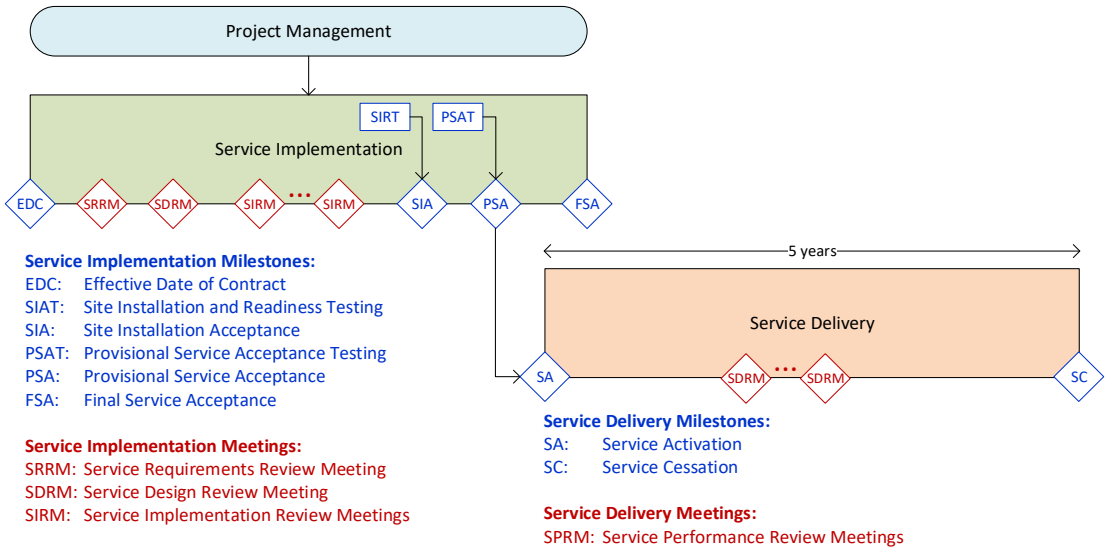


Figure 1-2 Contract implementation stages and main milestones

[14] Under the Service Implementation stage, the following milestones exist:

1) Effective Date of Contract (EDC)

2) Site Installation Acceptance (SIA);

3) Provisional Service Acceptance (PSA);

4) Final Service Acceptance (FSA).

[15] Under the Service Implementation stage, meetings between the Purchaser and the Contractor will be as follows:

1) Service Requirements Review (SRR) meeting (SRRM);

2) Service Design Review Meeting (SDRM);

3) Monthly Service Implementation Review Meetings (SIRM);

4) Ad-hoc Meetings as required.

[16] Under the Service Delivery stage, the following milestones exist:

1) Service Activation (SA), occurring on a fixed date, following PSA;

2) Service Cessation (SC), at the end of the period of performance of the Contract, and including Contractor's infrastructure withdrawal, where required.

[17] Under the Service Delivery stage, meetings between the Purchaser and the Contractor will be as follows:

1) Quarterly Service Performance Review Meetings (SPRM);

2) Ad-hoc Meetings as required.

1.5 Documentation

[18] The documentation products required under each of the three areas above are depicted in Figure 1-3 below and listed in detail in the CDRL of Appendix F.

[19] Documentation products under the Project Management and Service Implantation areas are produced, updated (if required) and approved during the first stage of the project, leading to Final Service Acceptance (FSA), and reviewed during Service Implementation Review Meetings.

[20] Documentation products under the Service Delivery area are continuously updated throughout the period of performance of the prospective Contract, and reviewed during the corresponding Service Performance Review Meetings.

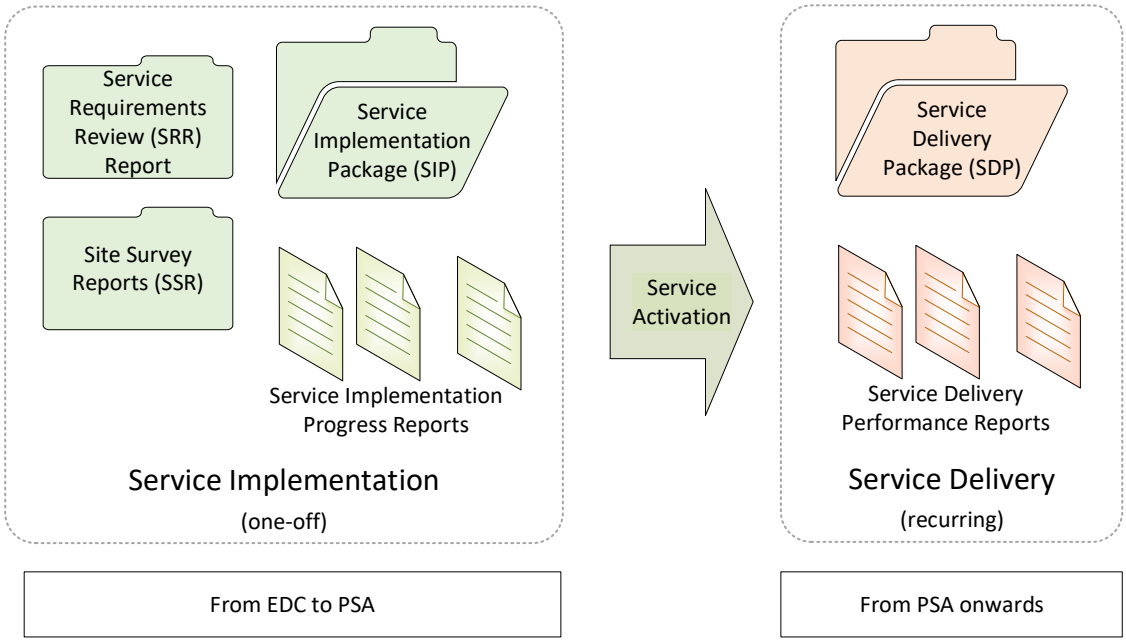


Figure 1-3 Main documentation products

[21] The first draft of the documents contained in the Service Implementation Package (SIP) and the Service Delivery Package (SDP) are provided with the bid. The Final Draft and the Final versions of those documents are produced during the Service Implementation stage, ahead of the Site Installation Acceptance (SIA) and the Final Service Acceptance (FSA). The above concerns the following documents:

1) For the Service Implementation Package (SIP):
   a) Service Design Description (SDD)
   b) Service Testing Plan (STP)
2) For the Service Delivery Package (SDP):
   a) Service Support Concept (SSC)
   b) Risk Management Plan (RMP)
   c) Service Continuity Plan (SCP)

[22] Any documentation products produced under this project will be subject of the review and acceptance process described in § E.5 of Appendix E (Documentation Requirements).

1.6 Conventions

[23] This SOW uses the term "node" to refer to the network infrastructure implemented at any of the three sites in the scope of this Contract, in order to deliver communications services. In the context of Transport Core Services, a node consists of any Network Termination Equipment (NTE) installed by the Contractor at each site, connected to the Purchaser Furnished Equipment (PFE), which corresponds to the P-Core Routers.

[24] Requirements applicable to the Contractor are preceded by a requirement heading, consisting of a prefix, followed by a number. For example "[**SOW-1**]". Requirements are formulated using the term "shall". Prefixes are as follows:

- Service Implementation: SI
- Service Delivery: SD
- Project Management: PM
- Service Requirements: SVC
- SLA Framework: SLA
- Security Requirements: SEC
- Testing Requirements: TST
- Documentation Requirements: DOC

[25] Context information supporting the requirements definition is provided using the term "will". "Shall" statements are contractually binding; "Will" statements are non-mandatory, or they imply intent on the part of the Purchaser.

[26] The order of the SOW requirements is not intended to specify the order in which they must be carried out unless explicitly stated. The SOW defines all the activities the Contractor's process should cover, i.e. the Contractor's process description and plans should include where and when these occur.

[27] With this SOW, the term "including" is never meant to be limiting - the list that follows is always non-exhaustive.

[28] The Contractor shall comply with each SOW item that is referenced by a unique SOW prefix and ID number in the document. Items referenced with a number in brackets are for information purposes only and will not be assessed for compliance.

[29] Any reference to "days" shall be interpreted as "calendar days".

Section 2 Service Implementation

[30] Service Implementation requirements below address the one-off activities to be performed by the Contractor to design and establish the services that fulfil the Service Requirements in 4.3.

SI-1 Service Implementation activities shall encompass the following:

1) A review of the requirements formulated in this SOW, with focus on service levels in accordance with the SLA framework provided in Appendix B;
2) Conducting and documenting surveys of the sites concerned;
3) Service Design activities, encompassing the update of the Service Design Description (SDD);
4) Site Installation and configuration activities, as required;
5) Service Testing activities, encompassing the update of the Service Testing Plan (STP) ,a Site Installation and Readiness Testing (SIRT) and Provisional Service Acceptance Testing (PSAT);
6) Producing Service Implementation Progress Reports (SIPR) and conducting periodic Service Implementation Review Meetings (SIRM);
7) Service Acceptance activities (Site Installation Acceptance, Provisional Service Acceptance).

[31] Requirements pertaining to the above listed activities are provided in the paragraphs hereafter.

2.1 Service Requirements Review

[32] The Service Requirements Review (SRR) is intended to:

1) Review, clarify and assure a common understanding of the Service Requirements as formulated in 4.2 of this SOW
2) Review of the Service Level Agreement (SLA) framework described in Appendix B of this SOW.

SI-2 The Contractor shall organize and run an SRR meeting. The meeting location shall be NCIA Mons, Belgium, or any other location (even virtually), based on a mutual agreement.

SI-3 Not later than one (1) week before the SRR meeting, the Contractor will submit any clarification requests to the Purchaser.

SI-4 Following the SRR Meeting, the Contractor shall provide an SRR report, with the confirmation and understanding of the Contractor of the requirements in the SOW, including the results of any clarification resulting from the SRR.

2.2 Site Surveys

SI-5 The Contractor shall perform site surveys for all TCS sites requiring:

1) The installation of CO-CO infrastructure (hereafter referred to as Network Termination Equipment, NTE) in support of the implementation of the TCS, as per the SSS; and,
2) The connection to NO-NO infrastructure (hereafter referred to as Purchaser Furnished Equipment, PFE) at those sites, for service termination purposes.

[33] The Purchaser will make available any existing site information, drawings, wiring assignments and referenced documents that may be useful to the Contractor, with the understanding that the Contractor will update and change this information as required, as well as add any other information required to fulfil his obligations under this Contract.

SI-6 The Contractor shall provide the necessary details to request site access to the Purchaser, at least two (2) weeks in advance of each visit.

SI-7 Following completion of any Site Survey, a Site Survey Report (SSR) shall be prepared by the Contractor and submitted to the Purchaser as per the Schedule of Supplies and Services (SSS), and undergo the review and acceptance process described in § E.5 of Appendix E (Documentation Requirements).

SI-8 The Site Survey Report shall, at each Transport Core site, identify and document the following:

1) Site access points for any last-mile Service Providers, covering both the intended option (Default Location within the sites listed in § 1.3) and all other available options (Alternate Placement[1]);
2) Rack location, AC power supply and environmental requirements for the Contractor equipment, up to the UNI demarcation point on the PFE device (PCR cluster);
3) Location and floor plan layouts, cable routing, configuration, and cabling assignments for the above, in the form of site-specific drawings (one per site);
4) Any civil works requirements pertaining to the termination of the Contractor transmission lines and their connectivity to the UNI demarcation point;
5) Point of Contact(s) information for the site;
6) List of activities required prior to and during service delivery, where falling under the responsibility of the Purchaser;

[1] Alternate Placement(s) are those that could host the CO-CO equipment and terminate the transmission lines, in the event that the preferred/Default Location becomes unavailable or no longer suitable at some point during the period of performance of the Contract.

7) List of activities required prior to and during service delivery, where falling under the responsibility of the Contractor.

2.3 Service Design

SI-9 Following the completion of all Site Surveys and the acceptance of the Site Survey Reports (SSR) by the Purchaser, the Contractor shall produce and deliver a Service Design Description (SDD).

SI-10 The SDD shall cover the following:

1) Information on the Contractor network topology, technology and physical infrastructure, in terms of cables and termination points applicable to the TCS, including Contractor-owned as well as any third party elements (identified as on-net and off-net, respectively).
2) The technical aspects of the services implementation, and their compliance to the Service Requirements in Appendix A, in the form of a Requirements Traceability Matrix (RTM);
3) Any technical details concerning any NTE equipment to be delivered for installation at the sites (site installation plans), and the interconnection with the PFE equipment (PCR Cluster), in terms of interfaces, cable lengths, connectors, etc., presented as a table with all the interconnection details. These details shall be provided for both the default and the alternate placement(s) of the equipment within each site.
4) An Excel sheet showing Contractor and NATO references per line.
5) Low Level Design per EPL, including proof of the resilience and diversity of the infrastructure supporting the implemented services (to include KMZ files);
6) MEF-53-Ethernet-Services-Qualification-Questionnaire.xlsx[2], in a fully filled-in state

SI-11 The SDD shall provide evidence that all the required infrastructure is in place in order to meet or exceed the Operational Availability (Ao) levels in Appendix A, i.e. each EPL is implemented with a primary and alternate bidirectional paths, with full 100G bandwidth reservations on both paths.

SI-12 The SDD shall contain the list of Contractor's baselined services, as Configuration Items.

SI-13 The SDD shall further documented dependencies between services and service components, including a list single points of failure, here defined as elements that will reduce the level of resilience of the services offered, when failing or malfunctioning.

[2] Refer to http://www.mef.net/resources/technical-specifications.

SI-14 As part of the SDD, and in support of the Service Change Management process described under § 3.2, the Contractor shall propose an Engineering Change Proposal (EPC) format based on the requirements in [NATO ACMP 2009, 2017].

SI-15 The SDD shall be delivered in two stages:

1) Final Draft SDD, ahead of starting Site Installation Activities;
2) Final SDD, ahead of starting Site Installation and Readiness Testing, and as part of the Service Implementation Package.

SI-16 The final SDD shall contain any amendments and/or additions resulting from the Site Installation activities and any other service implementation activities conducted outside the Purchaser's premises, where and if found relevant by the Contractor.

SI-17 The Contractor shall prepare and organise, as detailed below, a formal SDD Review Meeting after the delivery of the Final Draft of the SDD, as part of the review and acceptance process described in § E.5 of Appendix E (Documentation Requirements).

SI-18 The SDD Review meeting shall coincide with a Service Implementation Review Meeting (SIRM, see § 2.8).

[34] At the SDD Review Meeting, the Final Draft SDD will be subject of approval by the Purchaser.

[35] Upon Final Draft SDD approval, Site Installation activities can commence.

SI-19 Any discrepancies raised during the SDD Review Meeting, where traceable to deficiencies related to the design or to the understanding of the requirements, shall be amended following the review and acceptance process.

SI-20 Any installation activities required to enable the TCS, at locations other than the TCS sites identified in § 1.3, are the sole responsibility of the Contractor to plan and conduct.

2.4 Site Installation

SI-21 The Contractor shall be responsible for the installation and operation of all the NTE between the User-Network Interface (UNI) of the three Core Nodes, i.e. UNI to UNI. This comprises both infrastructure outside as well as inside the Purchaser's premises.

SI-22 At the three sites, Site Installation activities shall consist of, but shall not be limited to:

1) Last-mile fibre installation and verification;
2) NTE installation and verification.

SI-23 The Contractor shall ensure that each TCS site, prior to the Contractor's shipment and installation, is able to accommodate and sustain the operation of the NTE for the duration of the Contract.

SI-24 Site Installation activities shall abide by the Security Requirements contained in Appendix C.

SI-25 The Contractor shall deliver the NTE to the Purchaser facilities. The Contractor shall ensure that any requirements related to delivery of such equipment are obtained from the Purchaser in advance of shipments.

[36] The Purchaser will not be responsible for the status of any NTE upon arrival to its facilities or any damage occurred during transportation.

[37] The Purchaser will deliver AC power for the NTE to operate.

SI-26 The Contractor shall be fully responsible for receipt and installation of such equipment at each Purchaser site.

SI-27 If for some reason, the Contractor will not be able to be present and receive such equipment, then the Purchaser Integrated Logistics Support (ILS) representative shall be contacted for permissions to ship the items to the site and arrangement of temporary storage for a duration, to be specified by the Purchaser.

SI-28 The Contractor shall be responsible for arranging all that is necessary to access the sites where equipment is handled or stored.

SI-29 The packages in which supplies are transported shall, in addition to normal mercantile marking, show on a separate nameplate the name of the project, Contract number and shipping address.

SI-30 All deliveries shall be notified through issuing of a Notice of Shipment to the Purchaser’s ILS representative, at least 10 working days in advance of each shipment. The Notice of Shipment shall be accompanied by a packing list.

SI-31 The packing list shall include the following data:

1) The Purchaser’s Contract number;
2) The NCI Agency project number;
3) Names and addresses of the Contractor and the Purchaser;
4) Names and addresses of the Carrier, Consignor and Consignee (if different from Contractor or Purchaser);
5) Final destination address and Point of Contact;
6) Method of shipment;
7) For each box, pallet and container: box/pallet/container identification number and number of boxes/pallets/containers; weight; dimensions.

[38] The NCI Agency POC for all shipment instructions and shipment requests is:

NCI Agency, Acquisition-ILS

Attn.: Mr Cameron Fraser-Shaw, Principal ILS Assistant

NNHQ, Short Wing 2, Level 2, Office 21 (S2.2021)

1140 Evere, Belgium

Tel: +32 (0)2 7078212

E-mail: Cameron.Fraser-Shaw@ncia.nato.int

SI-32 One copy of the packing lists shall be fastened in a weather-proof, sealed envelope on the outside of each box.

SI-33 The Contractor shall be responsible for all customs related activities and payments for the shipment of any NTE.

SI-34 The Contractor shall ensure all deliveries are tracked via a consignment tracking system used either by the Contractor or by the appointed freight-forwarder/ carrier.

SI-35 The content of the ticket shall capture all details listed above, include live tracking of the shipment via the freight carrier's portal as well as the details of the specific service to the site to be supported by the shipment.

2.5 Service Testing

SI-36 The Contractor shall provide a Service Testing Plan (STP) describing all the activities necessary to complete the entire test programme as outlined below, and in compliance with the generic Testing Requirements in Appendix B.

SI-37 The STP shall be delivered in two stages:

1) Final Draft STP, together with the final draft SDD, ahead of starting Site Installation Activities;
2) Final STP, ahead of starting Site Installation and Readiness Testing, and as part of the Service Implementation Package.

SI-38 The STP shall indicate when Site Installation and Readiness Testing (SIRT) and Provisional System Acceptance Testing (PSAT) will be held.

SI-39 The STP shall contain the corresponding SIRT and PSAT Test Cases and Test Procedures (including the Contractor's proposed Test Acceptance Criteria).

SI-40 The STP shall contain a Verification Cross Reference Matrix (VCRM). The VCRM shall contain but not be limited to:

1) Requirement Definition
2) Related Test Case Reference.

3) Related Test Procedure Overview

SI-41 The Final Draft STP shall be delivered together with the Final Draft SDD, and shall be reviewed during the SDD Review meeting (see § 2.3), and undergo the review and acceptance process described in § E.5 of Appendix E (Documentation Requirements).

SI-42 The Contractor shall provide the Purchaser with information and assistance as may be necessary during the review and evaluation of the test procedures.

2.5.1 Site Installation and Readiness Testing

[39] Site Installation and Readiness Testing is intended to verify that the NTE has been correctly installed and connected to the Contractor infrastructure, and it is ready to be connected to the PFE.

SI-43 SIRT shall be conducted following NTE installation activities and ahead of requesting Site Installation Acceptance (SIA), at each site.

[40] SIRT activities will be witnessed by the Purchaser and/or his representative at each of the Purchaser's sites where the NTE will be installed.

SI-44 SIRT activities shall not involve any PFE. Any tests shall solely rely on the NTE and on test equipment provided and operated by the Contractor.

SI-45 During SIRT the Contractor shall demonstrate that the interfaces and specifications of the UNI meet the requirements in Appendix A, at each of the sites concerned.

SI-46 In particular, each individual EPL shall be subjected to the following performance test methodologies :

1) Enhanced RFC 2544 Test, for the benchmarking of the network elements;
2) ITU.T Y.1564 SAM Test, for Ethernet service attributes verification;
3) Layer 2 Control Protocol (L2CP) Transparency testing;
4) 72 hours Soak Test;
5) Any additional test to be performed as suggested by the Contractor.

SI-47 Furthermore, during SIRT each individual EPL shall be subjected to MEF 6.2 and MEF 10.3 compliance for the Service Attributes specified in Appendix A.

SI-48 SIRT shall further abide by the following MEF specifications for Service Activation Testing (SAT) and troubleshooting:

1) MEF 46, Latching loopback protocol and Functionality, implemented in UNI and ENNI locations as required
2) MEF 48.1, Ethernet Service Activation Testing

3) MEF 49.0.1, SAT Control Protocol and PDU formats

SI-49 Following the completion of the SIRT, the Contractor shall produce a SIRT Report, in accordance with the requirements in Appendix C, § D.6.

SI-50 SIRT Entry Conditions shall be as follows:

1) Final version of the Service Implementation Package (SIP, refer to § 2.7.1) containing the final versions of the SDD and STP~~, and the QAR~~. As part of the final STP, approved SIRT Test Cases and Test Procedures, including agreed test tools and Test Acceptance Criteria, for Site Installation Acceptance purposes;
2) Final Draft of the Service Delivery Package (SDP, refer to § 3.7.1) submitted by the Contractor;
3) Final Draft of the SLA submitted by the Contractor;
4) Purchaser's co-ordination and approval to commence testing;

SI-51 SIRT Exit Conditions shall be as follows:

1) All Test Acceptance Criteria shall be passed successfully;
2) Formal records of any deviations from the requirements of the Contract that are not considered Critical for Site Installation Acceptance, but Deferments, or Omissions, in the scale of Test Deficiencies described in Appendix E.
3) SIRT Report submitted by the Contractor and approved the Purchaser.

SI-52 Upon meeting the SIRT Exit Conditions above, the Contractor shall proceed to connect the NTE to the PCR clusters at each site, and prepare for the Provisional Service Acceptance Testing (PSAT, see below).

2.5.2 Provisional Service Acceptance Testing

SI-53 PSAT shall be conducted, at network level, after declaring Site Installation Acceptance (SIA) at each of the sites, and ahead of requesting Provisional Service Acceptance (PSA) for the TCS, network wide.

SI-54 Provisional Service Acceptance Testing (PSAT) shall be conducted following the connection and configuration of the services to the PFE (PCR clusters) at each site. The PCR clusters consist of two interconnected Cisco NCS-5545 routers.

[41] The Purchaser will be responsible to prepare and configure the PCR clusters for the interconnection with the NTE for PSAT purposes.

SI-55 PSAT shall be conducted exclusively using PFE, connected to the NTE, with test tools provided and operated by the Purchaser.

SI-56 PSAT shall demonstrate and prove the configuration and verification of the SLA Key Performance Indicators (KPI) via their performance management tools.

SI-57 PSAT shall demonstrate the diagnostic and fault management procedures for the end-to-end service delivery, to include the management domain of any subcontracted third party.

SI-58 PSAT shall verify that all the Service Requirements in 4.2 are met, with all three TCS sites involved, and all the PFE infrastructure connected to the NTE. This may involve repeating some of the tests performed under SIRT.

SI-59 Following the completion of the PSAT, the Contractor shall produce a PSAT Report, in accordance with the requirements in Appendix C, § D.6.

SI-60 PSAT Entry Conditions shall be as follows:

1) Site Installation Acceptance (SIA) declared at all three sites.
2) Approved PSAT Test Cases and Test Procedures, including agreed test tools and Test Acceptance Criteria, for Provisional Service Acceptance purposes
3) A Centralized Service Desk has been established and it is reachable by the Purchaser.
4) All OAM elements identified in the SDD have been established
5) Final SLA submitted by the Contractor;
6) Purchaser's co-ordination and approval to commence testing.

SI-61 PSAT Exit Conditions shall be as follows:

1) All Test Acceptance Criteria defined in the STP shall be passed successfully.
2) Formal records of any deviations from the requirements of the Contract that are not considered Critical for Provisional Service Acceptance, but are labelled as Deferments, or Omissions, in the scale of Test Deficiencies described in Appendix E.
3) PSAT Report submitted by the Contractor and approved by the Purchaser.

2.6 Service Acceptance

[42] Service Acceptance will be conducted in three steps, as follows:

1) Services Installation Acceptance (SIA), following successful SIRT (i.e. Exit Conditions are met)
2) Provisional Services Acceptance (PSA), following successful PSAT (i.e. Exit Conditions are met), leading to Service Activation
3) Final Services Acceptance (FSA), following successful resolution of any deficiencies recorded and carried from PSA.

[43] Site Installation Acceptance (SIA) will be declared upon:

1) Successful SIRT, i.e. SIRT Exit Conditions are met

2) Approval of the SIRT Report by the Purchaser.

3) Approval of the Final Service Implementation Package (SIP) by the Purchaser.

4) Approval of the Final Draft of the Service Delivery Package (SDP) by the Purchaser

5) Approval of the Final Draft of the SLA by the Purchaser.

[44] Provisional Service Acceptance (PSA), leading to Service Activation will be declared upon:

1) Successful PSAT, i.e. PSAT Exit Conditions are met

2) Approval of the PSAT Report by the Purchaser.

3) Approval of the Final SLA by the Purchaser.

[45] Final Services Acceptance (FSA) will be declared upon:

1) The successful resolution of any deficiencies recorded and carried from SIA and PSA.

2) The submission and approval of the final version of the Service Delivery Package.

SI-62 Following the declaration of SIA, the Contractor shall have 90 days to fix any deficiencies labelled as Deferments during the SIRT.

SI-63 Selected SIRT tests can be repeated ahead of requesting PSA, at no additional cost to the Purchaser, to verify any remedial actions applied to Deferments carried from SIA. Any such tests shall have the results documented by the Contractor in a PSA Report. The report shall include any additional information deemed required by the Contractor to support the declaration of PSA.

SI-64 Following the declaration of PSA, the Contractor shall have 90 days to fix any deficiencies labelled as Deferments during the PSAT, ahead of FSA.

SI-65 Selected PSAT tests can be repeated ahead of requesting FSA, at no additional cost to the Purchaser, to verify any remedial actions applied to Deferments carried from PSA. Any such test shall have the results documented by the Contractor in an FSA Report. The report shall include any additional information deemed required by the Contractor to support the declaration of FSA.

[46] In any of the cases above, Deferments that are not completed by the due date will be promoted to Critical by the Purchaser, and thus become blocking for the corresponding acceptance to be granted, unless the due date is modified by mutual agreement between the Contractor and the Purchaser.

SI-66 The Contractor shall declare Services Activation (SA) following declaration of PSA.

[47] Following PSA, the Purchaser will transfer responsibilities and all communications from the Project Manager (SDM) to the Service Delivery Manager (SDM).

SI-67 The Contractor shall ensure that Service Activation is tracked through NCI Agency Network Control Centre via ITSM records.

SI-68 Acceptance by FSA shall be conclusive except as regards latent defects, fraud or such gross mistakes or negligence as to amount to wilful intent.

[48] Service Acceptance meetings for SIA, PSA and FSA meetings will be convened and chaired by the Purchaser when he considers that the deliverables are ready for acceptance. Services Acceptance meetings may be conducted by correspondence or via conference calls (VTC), at the Purchaser's discretion.

[49] The Purchaser will arrange the taking, typing and distribution of minutes of the SIA, PSA and FSA meetings.

[50] The migration activities associated to disconnecting the HSC from the current transmission infrastructure and Service Provider and reconnecting it to the infrastructure and provider resulting from this Contract will be the responsibility of the Purchaser. During that transition period, PCR clusters will be simultaneously connected to and will pass traffic over the current and the new infrastructure.

2.7 Service Implementation Documentation

SI-69 The Contractor shall compile a Service Implementation Package (SIP) and generate Service Implementation Progress Reports (SIPR), in support of the corresponding Service Implementation Review Meetings (refer to § 2.8).

2.7.1 Service Implementation Package

SI-70 In support of Site Installation Acceptance, the Contractor shall submit the Service Implementation Package (SIP), consisting of (refer to the figure below):

1) The final versions of the SDD and the STP;
2) Certificates of compliance to standards as required in § A.2 of Appendix A
3) ~~Quality Assurance Report (QAR) supplied by the Contractor's QA Organisation.~~

SI-71 During the Service Delivery stage, the SIP and its constituent documents shall be kept up-to-date as and if the network evolves, by following Service Change Management process (refer to § 3.2).

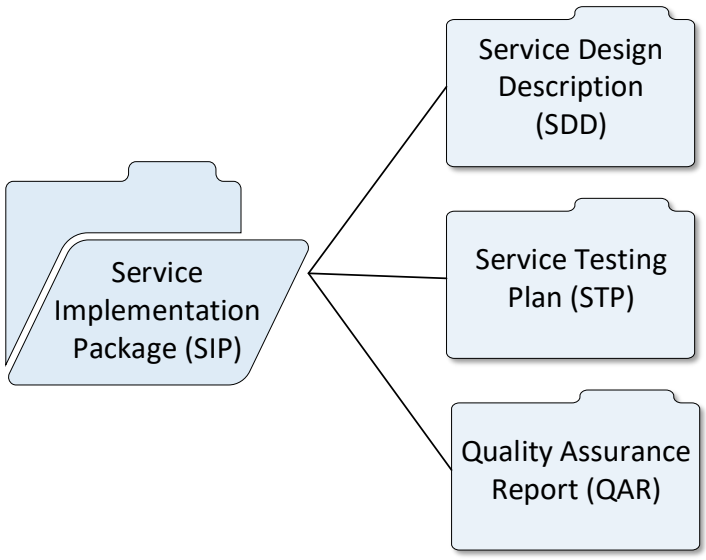


Figure 2-1 Contents of the Service Implementation Package (SIP)

2.7.2 Service Implementation Progress Reports

[51] The Service Implementation Progress Reports (SIPR) is the mechanism by which the Contractor and the Purchaser will track progress, identify and resolve risks and issues during the Service Implementation stage of the Contract.

SI-72 The Contractor shall submit their SIPR monthly, two (2) weeks before of the second SIPM, starting four (4) weeks after EDC, and up to PSA.

SI-73 The Contractor shall present the SIPR to the Purchaser during the monthly Service Implementation Review Meetings (SIPM).

SI-74 The SIPR shall summarise the progress since the previous SIPM, accomplishments, schedule of deliveries against progress, difficulties encountered and resolution of any issues raised in previous SIPM.

SI-75 The SIPR shall include, but shall not be limited to:

1) Overall project progress: the activities performed and works completed during the preceding reporting period
2) Follow-ups from previous reports.
3) Work planned for the next period, including products to be completed during the next period.
4) Tolerance Status (Costs, Delays and Performances).
5) A list of Change Proposals, if and where applicable, with the current status.
6) An up-to-date Project plan (Gantt chart).
7) An up-to-date Issue Log and Risk log.

8) An Agenda for the upcoming meeting and, if necessary, include a summary of items to be discussed.

[52] The Issue and Risk Logs shall list all potential and active issues and any management, technical, schedule risks, rated high or medium, affecting any factor relevant to the Service Implementation activities, and note any significant forecasted changes in these issues and risks during the period between Service Implementation Progress Meetings (see below).

2.8 Service Implementation Review Meetings

SI-76 In order to monitor progress and act upon risks and issues, the Contractor shall attend monthly Service Implementation Review Meetings (SIRM) with the Purchaser during the Service Implementation stage of the Contract.

SI-77 SIRM shall be chaired by the Contractor's Project Manager, and take place monthly.

SI-78 The SIRM shall be virtual (conference calls, VTC) unless otherwise requested by the Purchaser, in which case the meeting will take place in Mons.

SI-79 The first SIRM shall be conducted as a Kick-Off Meeting (KOM), two (2) weeks after EDC, and coincide with the Service Requirements Review (SRR) Meeting (refer to § 2.1).

[53] SIRM may be cancelled or postponed by the Purchaser without financial credit.

SI-80 The normal SIRM agenda proposed by the Contractor to the Purchaser for approval shall include (non-exhaustive list):

1) Minutes of previous Service Implementation Review Meeting;
2) The Contractor's presentation of the SIPR;
3) The joint review of the schedule;
4) Review of project risks and issues;
5) Review of actions from previous meetings;
6) Any other business.

[54] The Purchaser will confirm in writing the specific agenda with the Contractor one (1) week prior to each meeting.

Section 3 Service Delivery

SD-1 Throughout the period of performance of the Contract, the Contractor shall operate the service and provides all levels of support, while complying with the Service Delivery requirements below, structured along those service management process here described.

[55] These processes follow guidance from the IT Infrastructure Library (ITIL) and seek alignment with ISO/IEC 20000 to a large extent. They are not intended to interfere with any service management processes used internally by the Contractor, but to define the way the Contractor, as a Service Provider, interacts with the Purchaser, as the Service Consumer, under this Contract.

3.1 Service Operation

SD-2 The following Service Operation processes are considered relevant and shall be implemented throughout the period of performance of the Contract, in accordance with the requirements below:

1) Service Monitoring.
2) Service Reporting.
3) Event Management.
4) Incident Management.
5) Problem Management.
6) Service Desk.

3.1.1 Service Monitoring

SD-3 The Contractor shall provide, as part of the delivered services, direct access to real time test and monitoring tools to the Purchaser, in support of the Service Monitoring activities described here below.

SD-4 The Contractor shall separately monitor availability and performance.

SD-5 The Contractor shall monitor availability for:

1) Total loss of service or
2) Services with performance indicators degraded beyond acceptable limits (link is declared unavailable)

SD-6 The Contractor shall monitor availability separately per link and per direction (ingress and egress, relative to a node).

SD-7 The Contractor shall monitor performance for:

1) Services with performance indicators within limits
2) Services with performance indicators degraded but not exceeding the limits to declare the link unavailable.

SD-8 The Contractor shall monitor performance separately per link and per direction (ingress and egress, relative to a node).

SD-9 For service availability, the Contractor shall monitor availability of both the primary and alternate paths, and report the following instances:

- Alternate path down
- Primary path down, EPL restored over Alternate path

SD-10 Service Monitoring activities shall consist of three types of measurements:

1) **Continuous In-traffic (background) measurements**, conducted by the Contractor, for service performance and service availability monitoring purposes. These tests are performed UNI to UNI.
2) **Scheduled Quality Assurance measurements**, conducted by the Purchaser yearly, and consisting of a full RFC 2544 test on each EPL of the TCS (staggered in time)
3) **Ad-hoc Quality Assurance measurements**, consisting of a full RFC 2544 test on the EPLs concerned, conducted by the Purchaser, in any of the following circumstances:
   a) Upon Purchaser's request, when problems or faults are suspected on the UNI. These tests will be conducted ahead of opening a Trouble Ticket in order to qualify and quantify the defects found.
   b) After each service outage or Contractor's maintenance action (corrective or preventive), a full RFC test to verify that the EPL performance is met and ready for service.

SD-11 In-traffic measurement results shall be accessible to the Purchaser through a test and monitoring portal.

SD-12 In-traffic measurements shall be run and populate the test and monitoring portal on a continuous basis, 24x7, and shall allow the monitoring of real time detailed link status and KPI by the Purchaser.

SD-13 In-traffic measurements shall consist of a continuous sequence of test traffic and shall apply measurement methods and calculations in accordance with MEF 48.1.

SD-14 In-traffic measurements shall be used for the performance and availability calculations in the SLA.

SD-15 In-traffic measurements shall be non-interruptive to the live traffic and shall not consume more than 1% of the actual EPL bandwidth rate (1 Gbps).

SD-16 The provided test and monitoring portal shall enable the Purchaser to access all information related to the performance of the provided TCS, through the corresponding KPI, as defined in the Service Requirements of Appendix A.

SD-17 The Contractor shall provide and maintain daily based, KPI data as required in Appendix A, from Service Activation onwards, and for at least 18 months.

SD-18 The test and monitoring tools shall allow generation of on demand reports based on the KPIs and periods of performance.

SD-19 The test and monitoring tool shall allow generation of reports to support Root Cause Analysis (RCA) by the Contractor, for incident and problem tickets.

SD-20 The Contractor shall provide, as part of the delivered services, ~~a direct~~ access to ~~its~~ a Trouble Ticketing System to the Purchaser.

SD-21 The Contractor's Trouble Ticketing System (TTS) shall enable the Purchaser to access all information of all Trouble Tickets ~~and Service Requests~~ related to the delivered TCS.

SD-22 The Contractor's TTS shall track changes related to the service configuration~~, service requests and their implementation~~.

SD-23 The Contractor's TTS shall include all subcontractor TTS information when applicable i.e., as soon as any third party is involved in the service delivery, TTS information relevant to the service will be accessible through the Contractor's TTS.

SD-24 The Contractor's TTS shall include Problem management and Change Management modules fulfilling same requirements as the ones for incidents and allowing monitoring the services throughout their complete lifecycle, starting with Service Activation, up to Service Cessation.

3.1.2 Service Reporting

SD-25 The Contractor shall provide the availability performance metrics through monthly Service Delivery Performance Reports (SDPR, refer to § 3.7.2).

SD-26 In the SPDR the Contractor shall report all the KPIs and performance metrics defined under an SLA section of the report.

SD-27 The Contractor shall propose the format for the reporting, and update it, based on the Purchaser's review during the first Service Performance Review Meetings (SPRM).

SD-28 The report shall be accessible by the Purchaser, through the test and monitoring portal.

SD-29 The report shall include but shall not be limited to:

1) A summary dashboard
2) Tables with frames received, frames transmitted, bytes transmitted, bytes received and frame drops, positive jitter, negative jitter and round trip delay, per EPL.

SD-30 The Purchaser shall be able to raise any issues with the portal application, via the Contractor Service Desk (refer to § 3.1.6).

3.1.3 Event Management

SD-31 The Contractor's shall implement automated event management tool(s) that allow proactive service monitoring and trouble ticket generation.

SD-32 The Contractor's shall provide the Purchaser with access to the Event Management toolset.

3.1.4 Incident Management

SD-33 The objective of Incident Management is to restore normal operations as quickly as possible with the least possible impact on either the business or the user, at a cost-effective price.

SD-34 The Incident Management process shall be implemented in accordance with the ISO/IEC 20000.

SD-35 As required by the Purchaser and/or on Contractor's own initiative, managerial support escalation shall be triggered in case incidents cannot be resolved through the established Incident Management process.

SD-36 The Contractor shall remediate any security aspects identified by the Purchaser during the lifecycle of services. Security incidents affecting services availability shall count as Critical incidents and shall be accounted as downtime.

3.1.5 Problem Management

SD-37 The Problem Management process shall be implemented in accordance with the ISO/IEC 20000.

SD-38 The Contractor Problem Management process shall receive the Trouble Ticket (TT) from the Purchaser's (Alternate) Service Operations Centre (SOC) and/or own Service Desk and shall perform the following tasks (not limited to):

1) Identification of the root cause of the issue (e.g. by issue replication testing);
2) Identification of workarounds;
3) Identification and initial planning of possible short, medium and long-term solutions (e.g. workarounds, patches, etc);
4) Create Problem Analysis Report and Change Request incl. schedule of implementation;
5) Perform the Change Request implementation review.

3.1.6 Service Desk

SD-39 The Contractor's Service Desk shall liaise with the Purchaser's Service Operations Centre (SOC) or the Alternate SOC, whichever is applicable.

[56] The Purchaser's SOC or Alternate SOC will inform the Contractor's Service Desk as to which the Active SOC is, at any given time.

SD-40 The Contractor shall proactively notify the Purchaser of any issues that may affect the services provided, in 15 minutes upon the realization of such issue.

SD-41 The Contractor shall notify immediately the Purchaser's SOC and Alternate SOC if any operational issue with the Service Desk system arises during the Contract period.

SD-42 Trouble tickets shall be opened immediately after issues are reported by the Purchaser via e-mail or phone, or have been proactively detected by the Contractor.

SD-43 Trouble Tickets shall be opened for outages, scheduled outages and degraded conditions, as well as to track services activation and delivery.

SD-44 The Contractor's Service Desk personnel shall include as key-data in the Contractor's trouble ticket, the NATO Circuit Number and the Purchaser's trouble ticket number referencing the service and the issue. The Contractor's trouble ticketing system shall permit searching on these data.

SD-45 The Contractor shall inform the Purchaser of the Contractor Trouble Ticket number.

SD-46 The Contractor shall keep the Purchaser informed at regular intervals of 60 minutes of the progress that is being made in repairing the fault.

SD-47 Contractor trouble tickets shall be closed when the Service has been restored and the Purchaser has agreed that the trouble ticket can be closed upon receiving a Reason For Outage (RFO) and Final Fix Action (FFA) report allowing the tracking and documenting of the fault as well as the fix actions.

SD-48 The Contractor shall provide a Root Cause Analysis for any Problem Ticket raised and on Purchaser's request, in any other cases.

SD-49 The Contractor shall inform the Purchaser giving as much advance warning as possible, but in any case a minimum of four (4) calendar weeks' notice, of any scheduled works that may affect the services provided, giving the expected duration of such outages. The Contractor shall confirm the start of the downtime to the Purchaser, 60 minutes prior to the scheduled downtime.

SD-50 The Contractor shall put in place a system of managerial escalation. This escalation process may be invoked by the Purchaser when the assessment is made that additional resource for the rectification of a fault is needed.

3.2 Service Change Management

SD-51 Changes to the Service Requirements documented in Appendix A of this SOW, changes to the SLAs and to other documented agreements, as well as changes to the design documented in the Service Implementation Package (SIP), shall be controlled by the Service Change Management process and shall remain aligned with the delivered services.

SD-52 Any change implemented through the Service Change Management process shall be preceded by the delivery of a revised version of the SDD provided with the SIP, describing the extent and nature of the changes to the original technical solution described in the original SDD approved at the SDD Review Meeting.

SD-53 Any changes to the Contractor's baselined services as baselined in the SDD (handled as Configuration items) shall be processed as either Class I or Class II Engineering Change Proposals (ECP) as defined in [NATO ACMP 2009, 2017].

SD-54 When submitting ECPs, the Contractor shall assign a priority rating of Emergency, Urgent or Routine Extensions to the target times for processing.

SD-55 The Contractor shall apply configuration control procedures in the preparation, submission for approval implementation and handling of ECPs to baselined CIs.

SD-56 Class I ECPs shall have to be mutually agreed upon by the Contractor and Purchaser.

SD-57 Extensions to the target times for processing Class I ECPs shall be mutually agreed upon by the Contractor and Purchaser.

SD-58 Prior to implementation, all Class II ECPs shall be submitted by the Contractor to the Purchaser for review and classification concurrence.

SD-59 If the Purchaser’s representative does not concur in the classification, Class I ECP procedures shall be applied by the Contractor and the ECP and then formally submitted to the Purchaser for approval or rejection.

SD-60 The Contractor shall appropriately reflect in the technical documentation all design changes by the issue of appropriate changes or revisions.

SD-61 Any ECP shall include, as a minimum, the following information:

1) Reference Number;
2) Requirement affected (using the outline numbering of the SOW, or of Annexes);
3) Nature of change;
4) Rationale for the change;
5) Impact of change;
6) Description of how the change will be reflected in the delivered system's cost, schedule, and/or performance. This description shall include any trade-offs that shall be considered;
7) Status;
8) Priority.

SD-62 The Contractor shall perform, handle and prepare Requests for Deviation (RFD) and Requests for Waiver (RFW) when required and in line with the Purchaser requirements.

SD-63 The Contractor shall issue Deficiency Reports (DR) for reporting, tracking and resolving any deficiencies arising during service design, service transition and service operation processes.

3.3 Risk Management

SD-64 Risk Management activities shall be undertaken by the Contractor to identify the risks to the performance and availability of services by taking into consideration applicable business plans, service requirements, SLAs and risks.

SD-65 These risks shall be documented and periodically updated in the Risk Register of the Risk Management Plan (RMP), part of the Service Delivery Package (SDP, refer to § 3.7.1).

SD-66 Besides the periodic updates to the RMP in the SDP, the Contractor shall include, in the Service Delivery Performance Report (SDPR), a Risk Management section that:

1) Lists all active risks rated high or medium;
2) Notes any significant forecasted changes in these risks, during the period between Service Performance Review Meetings;
3) Identifies the mitigation actions for risks that have a medium to high probability of occurrence or have a medium to high impact.

3.4 Continuous Service Improvement

SD-67 The Contractor shall monitor trends and performance against service targets at planned intervals and provide the Purchaser with documented records of causes of nonconformities and opportunities for improvement.

SD-68 The Contractor shall periodically conduct and document maturity assessments against the service delivery, process activities and roles associated with the process activities to demonstrate areas of improvement or, conversely, areas of concern.

SD-69 The Contractor shall periodically review and document existing deliverables for relevance, while conducting external and internal service reviews to identify CSI opportunities based on services, processes, and technology availability and evolution.

[57] During the Service Delivery stage, the Purchaser will continuously assess the need and drivers for services evolution at strategical level to facilitate next generation of similarly contracted services and their evolution. The Contractor will be required to support that effort, in the terms below:

SD-70 The Contractor shall provide periodic reports on expected lifetime of delivered services and underlying supporting systems and technology to facilitate long term evolution of services, including extensions of the Contract by exercising options for additional years as in the Schedule of Supplies and Services.

3.5 Service Cessation

[58] Service Cessation occurs at expiration or termination of the Contract, i.e. end of TCS delivery.

SD-71 As part of the Service Cessation activities, the Contractor shall be responsible to withdraw all NTE equipment previously installed and operated in the Purchaser's premises.

SD-72 Two (2) months before Service Cessation activities begin, the Contractor shall submit a Service Cessation and Withdrawal Plan (SCWP) describing the planned activities in detail.

SD-73 NTE withdrawal shall be completed within 30 days following deactivation of services.

SD-74 Service Cessation activities shall not involve any additional cost to the Purchaser.

3.6 Service Extension

[59] Service Extension will occur upon the Purchaser exercising Options in the contract for additional years.

[60] Service Extension will require all the infrastructure and service delivery framework created under the basic contract to remain in place, in order to assure continuity of services beyond the initially contracted period of performance.

[61] The intent to exercise options for additional years will be communicated formally to the Contractor by the Purchaser not later than three (3) months before the planned Service Cessation.

3.7 Service Delivery Documentation

SI-81 The Contractor shall produce a Service Delivery Package (SDP) and generate Service Delivery Performance Reports (SDPR), in support of the corresponding Service Performance Review Meetings (refer to § 3.8).

3.7.1 Service Delivery Package

SD-75 The SDP shall be delivered in two stages:

1) Final Draft SDP, in support of the Site Installation Acceptance (SIA)
2) Final SDP, in support of the Final Service Acceptance (FSA)

SD-76 The SDP shall consist of the following documents:

1) Service Support Concept (SSC)
2) Risk Management Plan (RMP)
3) Service Continuity Plan (SCP)

SD-77 The Contractor shall update the SDP yearly, with any changes to the documents listed above.

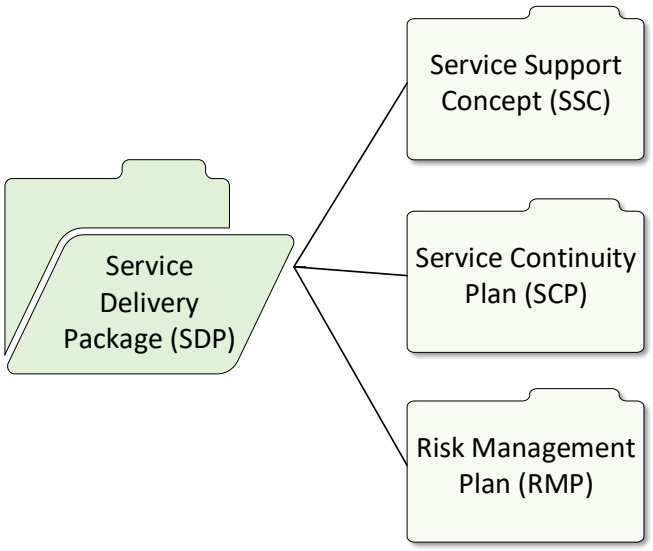


Figure 3-1 Contents of the Service Delivery Package (SDP)

SD-78 The Service Support Concept (SSC) shall describe the procedures, metrics and controls used for the delivery, configuration control, reporting and monitoring of the services throughout the lifetime of the Contract and focussing on how the requirements conveyed by the SLA will be met.

SD-79 With the SSC, the Contractor shall address:

1) The Contractor's support organization, responsibilities and procedures.
2) Operations, Administration and Maintenance concept, to include any logistics support where relevant, and all dependencies including dependencies for break and fix support sub-contracts.
3) Planning of technical support (on-call, on-site).
4) The Service Change Management process.

SD-80 The Risk Management Plan shall describe how the Contractor will perform risk management throughout the entire lifecycle of the services delivered under this Contract. As part of the RMP, the Contractor shall establish and maintain a Risk Register.

SD-81 The Risk Register shall contain all the risks inherited from the Risk Log used during the Service Implementation stage, as well as any new risks impacting the Service Delivery stage.

SD-82 The Risk Register shall rate each risk as High, Medium, or Low, based on its probability of occurrence, and the impact on the performance and continuity of the TCS Services.

SD-83 The Service Continuity Plan (SCP) shall identify those activities intended to deliver the minimum agreed service levels over time, in response to contingencies. In particular, this process shall define and update the contingency management and recovery actions to restore any TCS affected by outages or performance degradation.

SD-84 The Contractor shall update the SDP, including the SSC, the SCP and the RMP, on a yearly basis, throughout the period of performance of the Contract, using the information repository portal (refer to § E.1).

3.7.2 Service Level Agreement

SD-85 The Contractor shall provide a draft SLA with the Bid.

SD-86 The Draft SLA shall be discussed during the Kick-off Meeting (KOM), and shall be refined through subsequent Service Implementation Review Meetings (SIRM), leading to:

1) Final Draft SLA approved ahead of SIA
2) Final SLA approved ahead of PSA and subsequent Service Activation.

SD-87 Requirements for the draft SLA are provided in Appendix B, as a framework consisting of thresholds and boundaries, which the contractor shall abide by.

SD-88 The SLA shall later be part of the Contract, as Part V, and be usable as a standalone document by the Purchaser.

SD-89 The SLA can refer to the Contract General and Special provisions, but shall not change any of these provisions. Where special agreements are needed to clarify the Contract provisions the SLA shall include such clarifications.

3.7.3 Service Delivery Performance Reports

SD-90 During the Operations and Continuous Service Improvement phases the Contractor shall issue to the Purchaser a monthly Service Delivery Performance Report (SDPR), as per the CDRL and the SSS.

SD-91 In the SDPR, the Contractor shall record and report ~~in the SLA Reports~~ all requests including:

1) Description and number of the incidents,
2) Date/hour at which the incident was raised,
3) Earlier appearance of the incidents,
4) Checks and actions attempted in order to rectify the incident,
5) Description of item to be replaced if applicable,
6) Date and Time problem corrected,
7) Average Response Time,

8) Incident resolution time,

9) Number of problems and resolution times.

SD-92 The SDPR shall detail the fault occurrences during the preceding month with respect to the Services contracted. It shall describe each fault, showing the total downtime for each fault and whether or not deviations from the link availability or node reachability targets in PM-27 were incurred.

SD-93 The SDPR shall also detail the Service Availability and Performance details for each Service contracted. The Service Availability percentage shall be provided based on the downtime of the supplied services.

SD-94 Downtime of services shall be agreed upon by the Contractor and the Purchaser.

SD-95 If applicable, the Contractor shall calculate the resulting service credit for discussion during the next Service Performance Review Meeting (see below).

SD-96 The Contractor shall prepare the reporting information in the form of spreadsheets (Microsoft Excel), text (Microsoft Word), diagrams (Microsoft Visio), or presentations (Microsoft PowerPoint) as appropriate.

SD-97 The SDPR shall include an executive level summary detailing the services delivery, availability, and their continuous improvement during the reporting period.

SD-98 The SDPR shall include updated Risk Plan as details under Section 2 above.

SD-99 The last SDPR in any given quarter shall be submitted to the Purchaser two (2) weeks in advance of the next Service Performance Review Meeting (see below).

3.8 Service Performance Review Meetings

SD-100 In order to analyse the Service Availability and to determine the credits to be applied derived from the Service Delivery Performance Reports (SDPR), the Contractor shall attend a quarterly Service Performance Review Meeting (SPRM) with the Purchaser, throughout the Service Delivery stage of the Contract.

[62] The Purchaser reserves the right to increase or decrease the intervals between meetings or to call a meeting off.

[63] Quarterly SPRM will by default be conducted through conference calls (VTC) at NATO UNCLASSIFIED level.

[64] Yearly, one of the SPRM may be conducted face-to-face, at the Purchaser's facilities in Mons, Belgium, if so agreed by the two parties.

[65] In absence of any topics or issues to be discussed, the Purchaser may replace the SPRM by a formal e-mail confirmation of receipt and agreement with the contents of the three Service Delivery Performance Reports received over the last quarter.

[66] SPRM will be scheduled and chaired by the Purchaser's relevant Service Delivery Manager (SDM) during the Service Delivery stage.

SD-101 The SDPR shall detail the fault occurrences during the preceding month with respect to the Services contracted. It shall describe each fault, showing the total downtime for each fault and whether or not the target time to restore was met, as well as the percentage of faults cleared within the target time.

SD-102 The SDPR shall also detail the Service Availability and Service Degradation details for each Service contracted. The Service Availability percentage shall be provided based on the downtime of the supplied services.

SD-103 Downtime of services shall be agreed upon by Contractor and NCIA Operational Teams and will be based on technical data gathered by Contractor's test and monitoring tools.

SD-104 If applicable, the Contractor shall calculate the resulting service credit for discussion during the Contract Performance Meeting.

SD-105 Specific agreements on service credits made at the SPRM shall be documented and signed by duly authorized Contractor and Purchaser representatives at the meeting.

SD-106 The Contractor shall prepare the reporting information in the form of spread sheets (Microsoft Excel), text (Microsoft Word) or diagrams (Microsoft PowerPoint / Visio) as appropriate.

SD-107 Contractor shall prepare one page executive dashboard for the SPRM.

Section 4 Project Management

4.1 Purchaser's Project Management Approach

[67] The Project will be managed by the Contactor and will be subject to review by the Purchaser, who will be represented by the Purchaser's Project Management Team.

[68] The Purchaser will manage the project using the PRINCE2 project management methodology. Under this methodology, the Purchaser controls the project through, and acts as the chair of, a Project Board.

[69] The project covered under this Contract will be broken into two management stages, as many as stages of the project, as described in Section 1 of this SOW:

1) Service Implementation
2) Service Delivery

[70] A Project Board meeting will be scheduled at the end of first stage. The Project Executive may call additional Project Board meetings where it becomes evident that the project will fail to meet its objectives in terms of time, performance, quality or cost. For the Service Delivery stage, the Contractor shall organise the Service Performance Review Meetings as described in § 3.8.

PM-1 The Contractor shall nominate a management-level representative to the Project Board who:

1) Shall not be the Contractor's Project Manager,
2) Shall attend Project Board meetings held during the Contract execution as requested by the Project Executive,
3) Shall have authority to commit or acquire the required supplier resources.

[71] The role of the Contractor representative to the Project Board will be:

1) Ensuring that the required resources for the project are made available in accordance with the project plan.
2) Assessing the viability of delivered products on time and within the budget.
3) Providing a coordinated Supplier view.

PM-2 All deliverables under this project shall be PRINCE2 compliant according to templates provided by the Purchaser.

PM-3 For all the meetings conducted under this Contract, including the Service Implementation Review Meetings and the Service performance Review Meetings, the Contractor shall be responsible for producing minutes/records of these meetings and providing a draft copy for Purchaser comments within one (1) week of each meeting.

[72] The Purchaser will then provide comments and/or corrections made against the draft copy to the Contractor within two (2) days of receipt.

PM-4 The Contractor shall incorporate comments and/or corrections and return a final copy of the minutes to the Purchaser within two (2) days of receipt of the Purchaser's comments and/or corrections.

PM-5 The Purchaser shall have one (1) further week to notify the Contractor in writing, of any comments made against the minutes/records. If there are no comments, the minutes/records will be taken as accepted by the Purchaser

PM-6 The Contractor shall not consider the minutes as the basis for changes to the terms and conditions or Scope of Work of the Contract in the absence of a formal Contract Amendment.

[73] Ad Hoc Working Meetings outside the cycle of Service Implementation or Service Performance Review Meetings may be called subject to mutual agreement on request of either the Purchaser or the Contractor to resolve problems, clarify programme requirements or to review progress. Any such meetings will generally be held at the Purchaser's premises or over conference calls (VTC) at NATO UNCLASSIFIED level.

4.2 Contractor's Project Management Plan

PM-7 The Project Management Plan (PMP) shall define how the Contractor intends to manage this project during the Service Implementation stage, but may not be limited to, the following elements:

1) A description of the management structure of the Contractor's Project Team, indicating its relationships within the company structure.
2) A list of personnel assigned to the Contractor's Project Team Organisation and the related information appropriate to this project (i.e. education, language skills, experience to include previous experience with international organization and/or national military projects, security clearance, structured methodology roles) in accordance with the Roles and Responsibilities described under Section 4.3 below.
3) A description of Contractor / sub-Contractor (or any third party) relationship including controls, performance supervision such as, but not limited to, provision for regular progress review meetings and periodic progress and performance reporting.
4) A Project Control and Work Plan describing the required level of effort, procedures and implications from the Purchaser for installation, testing, activation of services, and performance of the TCS. This plan shall consider all aspects of project management and control and shall demonstrate how all the critical dates defined in the Contract will be met.
5) A GANTT and PERT charts showing detailed and high level schedules with the critical path, and associated resources and dependencies (shall be developed using latest version of Microsoft Project application).

6) The Risk Log applicable to the Service Implementation stage, to evolve into the Issue and Risk Log of the Service Implementation Progress Reports (SIPR).

PM-8 The PMP shall contain sufficient detail to allow the Purchaser to assess the Contractor's plans and capabilities in implementing the entire project in conformance with the requirements specified.

PM-9 The PMP shall demonstrate how the Contractor will meet service support requirements throughout the entire duration of the Contract.

PM-10 In the PMP, the Contractor shall propose and optimize the overall Site Installation schedule for the Contract and shall respect the target dates in the Schedule of Supplies and Services, for the implementation of the service across the Transport Core.

PM-11 After approval by the Purchaser, any new version of the Project Management Plan (PMP) submitted as part of the Bid shall constitute the unique Contractor's reference for the project implementation.

PM-12 The Contractor shall submit an Initial PMP as required under the Schedule of Supplies and Services, ahead of the start of the Site Surveys. Following the review and acceptance process described in § E.5 of Appendix E (Documentation Requirements), the Initial PMP shall become the final PMP.

PM-13 Pending the approval by the Purchaser of the Initial PMP, the Bid PMP (including the Purchaser's suggested changes, if any) shall constitute the Contractor's reference for the project implementation.

PM-14 The Contractor shall submit the Final PMP as required under the Schedule of Supplies and Services, ahead of the start of the Site Installations.

[74] The Purchaser, provided that all comments and/or corrections are incorporated, will formally approve the Final PMP during a Services Implementation Progress Meeting (SPRM).

[75] The Purchaser's acceptance of the final version of the PMP does not constitute Purchaser approval of the Contractor's plan, but signifies that the Purchaser considers the plan to be a logical and satisfactory approach to the management of the required activities, based upon the information provided. This approval in no way relieves the Contractor from its responsibilities to meet the requirements stated in this Contract. The requirements of the Contract supersede the statements of the PMP in the case of any conflict, ambiguity or omission.

PM-15 The Contractor shall submit a new version of the PMP anytime that any technical, management or contractual change is foreseen or necessary as a result of any alteration in the project implementation or supplemental agreement made to the Contract.

4.3 Roles and Responsibilities

PM-16 The Contractor shall establish a project management organisation for the purpose of performing and managing the efforts necessary to satisfactorily discharge his responsibilities under this Contract.

PM-17 The Contractor shall formally inform the Purchaser of the nominated Project Manager and any changes in this responsibility during the Contract.

PM-18 The Contractor shall formally inform the Purchaser of the appointed complete project team composition including, but not limited to: responsibilities, roles and names.

PM-19 The Contractor shall provide the necessary manpower and resources to conduct and support the management and administration of his activities order to meet the overall objectives of the Contract.

PM-20 The Contractor shall provide direct support to the Purchaser for performing all activities directly related to the network transition and which are in support of normal daily system operating activities.

PM-21 During the Service Implementation stage, all events shall be planned and controlled by the Contractor in accordance with the approved PMP.

PM-22 As part of the monitoring and control function, the Contractor shall advise the Purchaser at all times of potential problems and schedule risks.

PM-23 The Contractor shall provide the following key staff roles for Service Implementation stage of the Contract:

1) Project Manager (PRINCE2 certified).
2) Deputy Project Manager.
3) Technical Lead/Designer
4) Service Implementation Manager
5) Site Installation Team Leaders
6) Test Director
7) Quality Assurance Manager

PM-24 The Contractor shall provide the following key staff roles for Service Delivery stage of the Contract:

1) Service Manager
2) Technical Lead/Designer
3) Service Desk Director

PM-25 For each of the roles above, the Contractor shall nominate an individual, who shall be committed to that role through the duration of the stage, or replaced by someone with equivalent or higher qualifications, if circumstances demand, in accordance with the Special Provisions (SPs).

[76] The Purchaser has the right to refuse any proposed staff member or substitution as not meeting the qualifications and request the Contractor to offer another qualified individual in lieu thereof.

[77] For each of the roles above, the Purchaser will appoint an individual within similar qualifications within the Purchaser's Project team. Communications concerning each role's subject will directly take place between these individuals, with Project Managers and other roles on copy, as required.

PM-26 For each of the roles above, the Contractor shall provide sufficient information on the individual(s) skills and experience for the Purchaser to conduct his own assessment of the individual's profile, in terms of alignment with the skill levels being sought under this Contract.

PM-27 The Contractor shall establish the project organisation members who are interacting directly with the Purchaser (including Purchaser's personnel at the sites subject of this procurement) and/or contributing to any written deliverables under this Contract, shall have a thorough knowledge of the English language.

Appendix A Service Requirements

A.1 General

SVC-1 The Contractor shall be responsible for providing and implementing Ethernet Private Lines (EPL) compliant with the Metro Ethernet Forum 2.0 (MEF 2.0), at speeds up to 100 Gbps, between the P-Core Router cluster in the three Core Nodes.

SVC-2 Each of the Core sites shall be provided with demarcation interfaces, as depicted in the figure below, with two separate and independent connections per node, one per P-Core Router, as depicted in the figure below (i.e. one single 100 Gbps interface per destination). These interfaces correspond to the User Network Interface (UNI).

SVC-3 The connections that make the Transport Core shall be provided as Ethernet Private Lines (EPL), provisioned with a bandwidth profile at the UNI interface.

SVC-4 There shall be no bundling of more than one EPL on a UNI. EPL shall be implemented as point to point EPL with no service multiplexing at each UNI – “all-to-one bundling”.

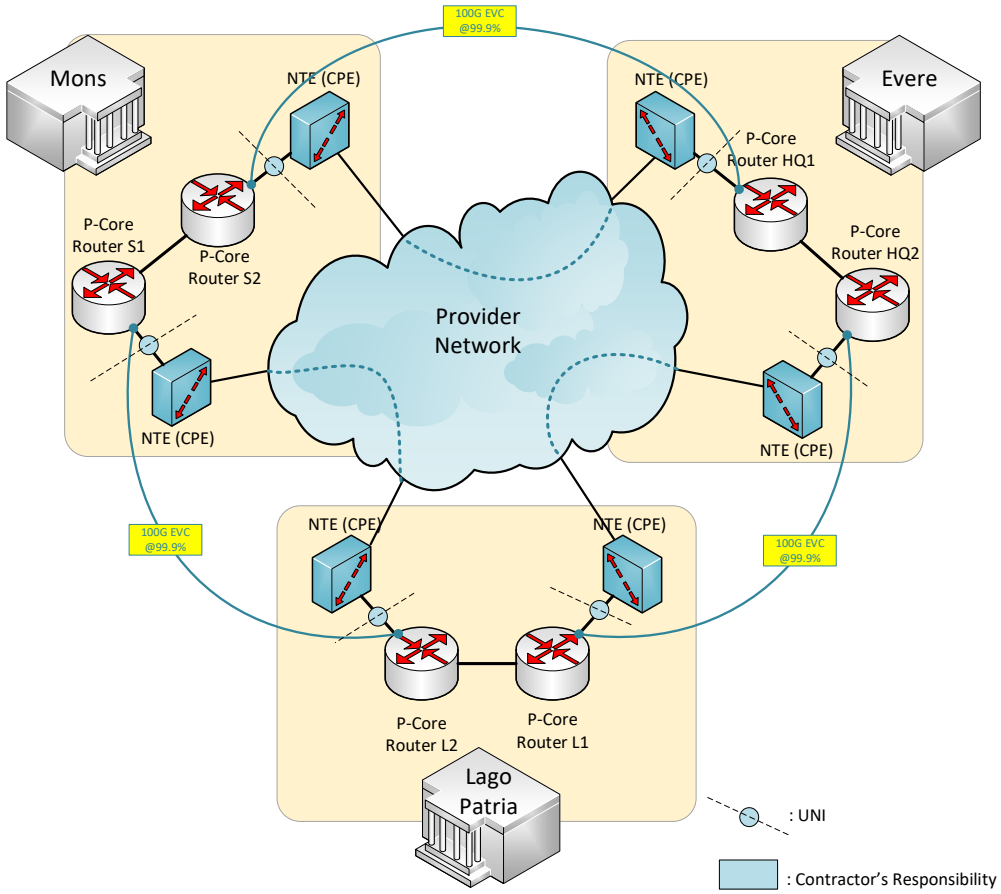


Figure A-1 HSC Notional Representation

SVC-5 Three EPL shall be established between the UNIs of the P-Core Routers (PCR), adhering to the topology below (see figure :

- PCR S1 in Mons connected to PCR L2 in Lago Patria
- PCR S2 in Mons connected to PCR HQ1 in Evere
- PCR HQ2 in Evere to PCR L1 in Lago Patria

SVC-6 The three physical paths carrying the EPLs shall be independent from each other, in the sense that they shall not share any common infrastructure, where any malfunction or outage affecting that common infrastructure can simultaneously effect more than one EPL at a time.

[78] Service Requirements are further developed here Figure A-1below, in terms of:

1) Standards
2) Physical Interfaces
3) Service Attributes
4) Service Operation, Administration and Maintenance

5) Service Performance

6) Service Availability.

A.2 Standards

SVC-7 In implementing and delivering TCS, the Contractor shall comply with the below listed frameworks and standards (or equivalent):

1) ISO/IEC 20000-1:2018 Information technology -- Service management - Part 1: Service management system requirements

2) ISO 9001:2015 Quality Management Systems

3) ISO/IEC 27001:2013 - Information Security Management Systems

4) Metro Ethernet Forum (MEF) 2.0 services and technology

5) Metro Ethernet Forum (MEF) 6.3 Subscriber Ethernet Services Description 2019

SVC-8 Compliance shall be supported by the appropriate certification for the services, their operation, administration and maintenance, as well as their underlying supporting infrastructure and subcontractors.

SVC-9 Certificates shall be made available as part of the initial version of the Service ~~Detail~~ Design Description submitted with the Bid. This may include proof that the Contractor has engaged in acquiring such certificates, and that certificates will be available ahead of Contract Award.

A.3 Physical Interfaces

SVC-10 The NTE shall interface the P-Core Routers using QSFP-100G-LR4-S interfaces over LC connectors.

A.4 Service Attributes

SVC-11 Ethernet services shall be compliant with the MEF (Metro Ethernet Forum) recommendations and service attributes in MEF 6.3 and MEF 14. In particular:

1) Compliance for MEF standards shall be demonstrated by providing a MEF conformity certificate to the Purchaser (refer to 2.5.1).

2) MEF Compliance shall be verified and notified to the Purchaser after each major system or software change throughout the Contract execution.

SVC-12 Ethernet services shall be compliant with:

1) IEEE 802.3-2005 recommendations.

2) ITU-T Rec. G.8261 that defines aspects about the architecture and the wander performance of SyncE networks (IEEE 1588-2019 - IEEE Standard for a Precision Clock Synchronization), both in terms of support and transparency.

3) ITU-T Rec. G.8262 that specifies Synchronous Ethernet clocks for SyncE

4) ITU-T Rec. G.8264 that describes the specification of Ethernet Synchronization Messaging Channel (ESMC)

SVC-13 Ethernet services shall support the Layer 2 Control Protocols (L2CP) listed in the table below.

Table A-1 Layer 2 Control Protocols (L2CP)

Layer 2 Control Protocol (L2CP)	Protocol Identifier	L2CP Destination Addresses	Treatment	Operational Importance
Link Aggregation Control/Marker Protocol (LACP)	EtherType: 0x8809 Subtypes: 0x01, 0x02	01-80-C2-00-00-00 01-80-C2-00-00-02 01-80-C2-00-00-03	Pass L2CP Frames at all UNI's	Medium
802.3 Operations, Administration, and Maintenance (Link OAM)	EtherType: 0x8809 Subtype: 0x03	01-80-C2-00-00-02	Pass L2CP Frames at all UNI's	Critical
Ethernet Synchronization Messaging Channel (ESMC)	EtherType: 0x8809 Subtype: 0x0A	01-80-C2-00-00-02	Pass L2CP Frames at all UNI's	Critical
Precision Time Protocol Peer-Delay (PTP)	EtherType: 0x88F7	01-80-C2-00-00-0E	Pass L2CP Frames at all UNI's	Critical
Ethernet Local Management Interface (E-LMI)	EtherType: 0x88EE	01-80-C2-00-00-07	Pass L2CP Frames at all UNI's	Medium
Link Layer Discovery Protocol (LLDP)	EtherType: 0x88CC	01-80-C2-00-00-00 01-80-C2-00-00-03 01-80-C2-00-00-0E	Pass L2CP Frames at all UNI's	Critical
Virtual Station Interface Discovery and Configura-tion Protocol (VDP)	EtherType: 0x8940 Subtype: 0x0001	01-80-C2-00-00-00	Pass L2CP Frames at all UNI's	Low
Port Extender Control and Status Protocol (PE-CSP)	EtherType: 0x8940 Subtype: 0x0002	01-80-C2-00-00-03	Pass L2CP Frames at all UNI's	Low
Port-Based Network Access Control	EtherType: 0x888E	01-80-C2-00-00-00 01-80-C2-00-00-03 01-80-C2-00-00-0E	Pass L2CP Frames at all UNI's	Medium
802.3 MAC Control: PAUSE	Etherype: 0x8808 Subtype: 0x0001	01-80-C2-00-00-01	Pass L2CP Frames at all UNI's	Critical
802.3 MAC Control: Priority FMedium Control (PFC)	Etherype: 0x8808 Subtype: 0x0101	01-80-C2-00-00-01	Pass L2CP Frames at all UNI's	Critical

Layer 2 Control Protocol (L2CP)	Protocol Identifier	L2CP Destination Addresses	Treatment	Operational Importance
802.3 MAC Control: Multipoint MAC Control	Etherype: 0x8808 Subtype: 0x0002-0x0006	01-80-C2-00-00-01	Pass L2CP Frames at all UNI's	Medium
802.3 MAC Control: Organization Specific Exten-sions	Etherype: 0x8808 Subtype: 0xFFFE	01-80-C2-00-00-01	Pass L2CP Frames at all UNI's	Critical
Rapid/Multiple Spanning Tree Protocol (RSTP/MSTP)	LLC Address: 0x42	01-80-C2-00-00-00 01-80-C2-00-00-08	Pass L2CP Frames at all UNI's	Low
Shortest Path Bridging (SPB)	LLC Address: 0xFE	01-80-C2-00-00-2E 01-80-C2-00-00-2F	Pass L2CP Frames at all UNI's	Low
Multiple MAC Registration Protocol (MMRP)	EtherType: 0x88F6	01-80-C2-00-00-20	Pass L2CP Frames at all UNI's	Critical
Multiple VLAN Registration Protocol (MVRP)	EtherType: 0x88F5	01-80-C2-00-00-21 01-80-C2-00-00-0D	Pass L2CP Frames at all UNI's	Low
Multiple Stream Registration Protocol (MSRP)	EtherType: 0x22EA	01-80-C2-00-00-0E	Pass L2CP Frames at all UNI's	Low
Multiple ISID Registration Protocol (MIRP)	EtherType: 0x8929	01-80-C2-00-00-00	Pass L2CP Frames at all UNI's	Low

[79] In case one or more of the L2CP protocols are not supported, or are found to be deviate from the specification during the testing activities in the Service Implementation stage, Test Deficiencies (refer to Appendix E, § D.7) will be raised and graded, based on the Operational Importance in the last column of the table above, as per the table below.

Table A-2 Grading of L2CP compliance deviations

Operational Importance	Test Deficiency
Critical: Essential before service acceptance and activation	Critical
Medium: Not essential for initial service acceptance and activation but needs to be fixed within 90 days, otherwise it is promoted to Critical	Deferment
Low: Not essential for initial service acceptance and activation	Deferment

SVC-14 Service jumbo frames with an MTU ≥ 9026 shall be supported

SVC-15 No service multiplexing at the UNI shall be applied.

SVC-16 No bundling at the UNI shall be applied. (or All-to-One bundling shall be supported on the UNI).

SVC-17 CE-VLAN ID preservation shall be supported on the UNI.

SVC-18 CE-VLAN CoS Preservation shall be supported on the UNI.

SVC-19 Services frames at the UNI shall be mapped to a single EPL service.

SVC-20 An Ingress Bandwidth Profile shall be provisioned with the following attributes:

- Committed Information Rate CIR for each EPL equal to UNI speed,
- Excessive Information Rate EIR equal to 0,
- Excessive Burst Size EBS equal to 0,
- ColorMode and Colorblind,
- Coupling Flag CF=0,
- L2CP and Spanning tree protocols STP/RSTP/MSTP shall be tunnelled,
- ~~L2CP PAUSE (802.3) shall be discarded,~~
- ~~L2CP/LAMP shall be peered,~~
- ~~L2CP LINK OAM shall be peered~~,
- L2CP Port Authentication shall be tunnelled,
- ~~L2CP /ELMI shall be peered~~,
- ~~L2CP/ LLDP shall be peered~~,
- L2CP / GARP/MRP shall be tunnelled,
- Unicast / Multicast and Broadcast shall delivered unconditionally.

SVC-21 The EPL shall be delivered at the UNI of the P-Core Routers (NCS 55A2) over QSFP-100G-LR4-S interfaces with LC connectors.

SVC-22 The interconnection between the NTE and the PCR shall be the responsibility of the Contractor.

[80] 802.1AE is the Media Access Control Security standard defined by the IEEE 802.1 working group in 2006.

[81] MACSEC enables devices connected over point-to-point or shared Ethernet networks to protect confidentiality, integrity and availability of Ethernet traffic.

[82] MACsec is based on the standard Ethernet frame format with an additional 16-byte MACsec Security Tag (SecTAG) and a 16-byte Integrity Check Value (ICV).

[83] The SecTAG format (16 octets) consists of (refer to figure below)

- MACsec EtherType: Two octets with value 0x88e5 indicating that the frame is a MACsec frame.
- TCI/AN : One octet as the TAG Control Information (TCI)/Association Number field.
- SL: One octet, defines the length of the encrypted data.
- PN: Four octets, defining the packet number and used for replay protection
- SCI: Eight octets , defining the secure channel identifier.

SVC-23 The EPL shall transport the MACsec frames unaltered and without interference.

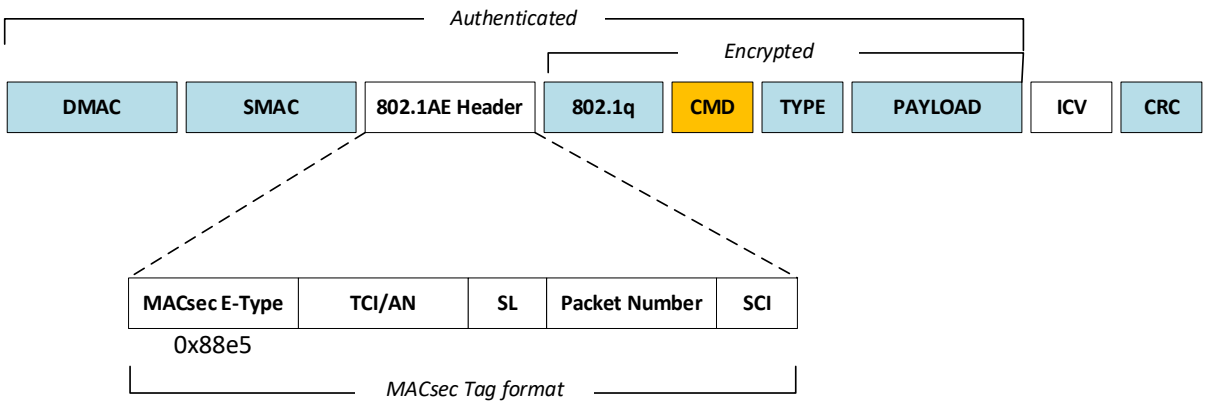


Figure A-2 MACSEC Ethernet frame format.

A.5 Service Operation Administration and Management

SVC-24 Service Operation, Administration and Management (OAM) requirements shall be met as per MEF 17 (or its equivalent functionality shall be indicated instead).

SVC-25 Service OAM shall provide the capability for a service aware NE to discover other service-aware NEs supporting the same EPL inside a Service Provider OAM Domain. The provider shall be able to place OAM towards NE in the provider network (includes subcontractors) for clearer fault isolation to clarify reporting on Reason For Outage (RFO) and Fix Actions as well as to have the necessary visibility on robustness of the services within provider's network. The end to end service OAM managements domains shall be presented as part of the solution.

SVC-26 Service OAM shall provide the capability to monitor the Connectivity Status of a Maintenance Entity.

SVC-27 Service OAM shall provide the capability to monitor the Connectivity Status of a Maintenance Entity Group.

SVC-28 Service OAM shall provide the capability to detect a change in Connectivity Status within a configurable time interval. This configurable time interval shall be more than the network restoration time.

SVC-29 Service OAM shall provide the capability to verify the existence of a connectivity fault inside a Service Provider OAM Domain.

SVC-30 Service OAM shall provide the capability to transmit Service OAM frames at any permissible priority.

SVC-31 Service OAM shall provide capability to estimate Frame Loss for Service Frames with the level of Bandwidth Profile conformance determined to be Green and associated with a particular CoS instance between the UNIs of an EPL during a time interval T inside a Service Provider OAM Domain.

SVC-32 Service OAM shall provide the capability to estimate two-way Frame Delay experienced by Service Frames with the level of Bandwidth Profile conformance determined to be Green and associated with a particular CoS instance between the UNIs of an EPL during a time interval T inside a Service Provider OAM Domain.

SVC-33 Service OAM shall provide the capability to measure the difference between the one-way Frame Delay estimates of a pair of Service Frames with the level of Bandwidth Profile conformance determined to be Green and associated with a particular CoS instance between the UNIs of an EPL. The pair of Service OAM frames are inserted exactly Δt time units apart within the time interval T, where both Δt and T are configurable.

SVC-34 Service OAM frames shall follow the same path across the MEN as the Service frames in an EPL.

SVC-35 Service OAM shall provide OAM capabilities without dependency on underlying TRAN Layer technologies and OAM capabilities.

SVC-36 Security management functions shall be delivered as per MEF 15 or indicate its equivalent functionality to support the prevention and detection of improper use of network resources and services, for the containment of and recovery from theft of services or other breaches of security, and for security administration.

SVC-37 EPL services shall allow the Purchaser to implement its own OAM capabilities transparently and independent of the Contractor’s management domain.

SVC-37b The use of ad-hoc management networks for the purposes of monitoring and controlling any network termination equipment deployed at the Purchaser’s locations under this Contract shall be avoided.

A.6 Service Performance

SVC-38 The Contractor shall monitor the delivered EPLs in real time and shall report degraded performance (ultimately leading to unavailability), through the test and monitoring tool (refer to § 3.1.1).

SVC-39 The UNI interface speed shall be 100 Gbps, minus any capacity required by the Contractor for in-traffic (background) test and monitoring purposes, which shall not exceed 1% of the interface speed (i.e. 1 Gbps).

SVC-40 The following EPL KPI per EPL shall be committed for nominal operation, where P equals 1 ms per integer multiple of 125 km crow fly distance, and distances are as per the table in the figure further below.

Table A-3 KPI for Nominal EPL Services

EPL		Frame Delay	Frame Delay Variation	Frame Loss
MONS	EVERE	< 5 msec	< 10msec	$\leq 10^{-6}$
MONS	LAGO	<15msec +P	< 10msec	$\leq 10^{-6}$
EVERE	LAGO	<15msec +P	< 10msec	$\leq 10^{-6}$

Table A-4 Internodal distances (km) and P (ms)

NATO Node 1	NATO Node 2	Distance (km)	P (ms)
Mons, BE	Evere, BEL	35	0
Evere, BEL	Lago Patria, ITA	1281	10
Mons, BEL	Lago Patria, ITA	1316	10

[84] The EPL service will be considered Degraded when the KPI are measured to be below the limits contained in the table below, in one of the following circumstances:

1) **Continuously** operating outside the limit over a period (referred to as T) longer than 4 minutes and 22 seconds per month, corresponding to a Degraded Availability value of 99.99%.

2) **Intermittently** operating outside the limit over intervals shorter than 4 minutes and 22 seconds per month, but adding to or exceeding that amount of time, over a measurement period of twenty (20) minutes. In this case, T is the period of time where that rate of occurrence is maintained or exceeded (i.e. 20 minutes or longer).

SVC-41 Under the first case above (continuous degradation), degraded EPL service time subject to credits shall start counting after one minute, until deviations cease and KPI return to and remain nominal for a period longer than 1 minute.

SVC-42 Under the second case above (intermittent degradation), degraded EPL service time subject to credits starts counting after five minutes, until deviations cease and KPI return to and remain nominal for a period longer than 5 minutes. Refer to SLA Framework Appendix B, § B.2 for details.

Table A-5 KPI for Degraded EPL Services

EPL		Frame Delay	Frame Delay Variation	Frame Loss
MONS	EVERE	> 5msec	>10msec	> 10^{-6}
MONS	LAGO	> 15msec+P	>10msec	> 10^{-6}
EVERE	LAGO	> 15msec+P	>10msec	> 10^{-6}

A.7 Service Availability

SVC-43 The Contractor shall monitor the delivered EPLs in real time and shall report outages or severe degradation leading to unavailability, through the test and monitoring tool (refer to § 3.1.1).

[85] Service Availability will be measured using two ~~three~~ attributes, listed and further described below:

1) Single Link Availability
2) Single Node Reachability
3) ~~Dual Node Reachability~~

SVC-44 Single Link Availability shall be equal or higher than 99.9%, measured 24x7 over a period of one month, for the connectivity provided by any single EPL between two adjacent Core nodes and their corresponding PCR clusters.

SVC-45 Single Node Reachability shall be equal or higher than 99.995%, measured 24x7 over a period of one month, for the connectivity provided between the PCR cluster in any given Core node, and the PCR cluster of one of its adjacent Core nodes.

[86] The above two attributes and their target values are illustrated in the figure below.

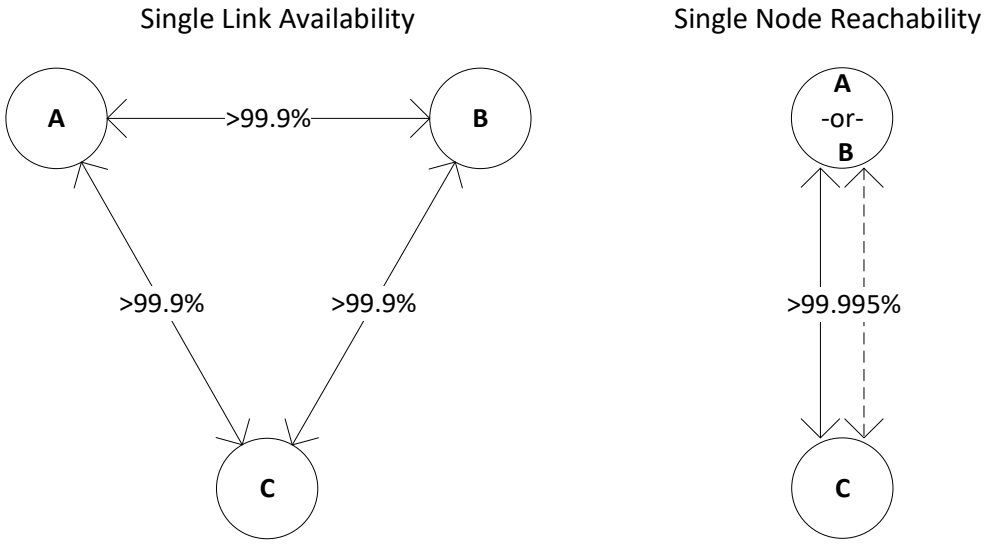


Figure A-3 Service Availability attributes and target values

[87] A link will be declared unavailable, or a node will be declared unreachable, and service credits will consequently apply, when the EPLs concerned are either down (outage condition) or are exhibiting degraded performance KPI as per the table below (highly degraded condition), and in one of the following circumstances:

1) **Continuously**, over a continuous period (referred to as T) exceeding the maximum downtime associated to the link availability or node reachability figure (e.g. 43 minutes and 49 seconds, i.e. ca. 44 minutes, or 0.74 hours, for 99.9% availability of a link).

2) **Intermittently**, but occurring at a rate equal or higher than 10 times within the maximum downtime associated to the availability or reachability figure (e.g. more than 10 times over a period of 44 minutes, whatever the number of occurrences and the duration of each). In this case, T is the period of time where that rate of occurrence is maintained or exceeded.

SVC-46 In both cases above, credits shall apply to any time exceeding the maximum downtime associated to the availability or reachability figure, until the outage ceases, or the KPI values return to nominal and remain nominal for the same period of time (44 minutes in the example above). Refer to SLA Framework Appendix B, § B.2.2 for details.

Table A-6 KPI for Severely Degraded (thus Unavailable) EPL Services

EPL		Frame Delay	Frame Delay Variation	Frame Loss
MONS	EVERE	> 7msec	>12msec	$>10^{-5}$
MONS	LAGO	> 15msec+P+10msec	>12msec	$>10^{-5}$
EVERE	LAGO	> 15msec+P+10msec	>12msec	$>10^{-5}$

SVC-47 The Contractor shall demonstrate the security management and log functions to assure data transport privacy and Denial of Service prevention / protection of the TCS.

SVC-48 The Contractor shall restore any loss of resilience, here defined as the loss of the alternate path of any of the committed EPL not later than 4 hours following reporting on the test and monitoring tool.

Appendix B SLA Framework

B.1 Introduction

[88] This Appendix is intended to define the thresholds and boundaries that the Contractor shall abide by when developing the draft SLA.

SLA-1 The draft SLA shall include as a minimum.

1) General Considerations.
2) Terminology and definitions.
3) Service Description.
4) Service Level Specifications.
5) Roles and Responsibilities.
6) Incident Management and Priorities, including escalation procedures.
7) Service Change Management.
8) Service Credits Schema.

SLA-2 The SLA shall not contain any security sensitive information.

B.2 Service Credits

SLA-3 Service Credits schema shall be separately formulated for Service Performance and Service Availability and their corresponding KPI, based on the Service Requirements contained in Appendix A and the deviation time bands (Duration of Status) provided in the first column of tables below.

SLA-4 Service Performance credits shall apply to each instance when these deviations are observed.

[89] An instance is here defined as a single continuous event exceeding the prescribed time limits, or a sequence of shorter and contiguous events, adding to or exceeding the prescribed time limits over a given observation period (refer to definitions of continuous and intermittent events in § A.6).

[90] Service credits are calculated and applied monthly, based on the number and the duration of the events reported in the Service Delivery Performance Report of the previous month, and the EPL monthly rate quoted in the corresponding table of the Schedule of Supplies and Services (SSS). In particular:

1) Service Credits are calculated based on the EPL monthly rate prorated to the “Time Credited” as defined in the tables below.
2) Time Credited is defined over five bands, for increasing durations of the deviation.
3) Each band has a Credit Factor, which is applied to the amount of Time Degraded, Unavailable or Unreachable, to derive the Time Credited.

B.2.1 Service Performance Credits

SLA-5 Service Performance credits shall apply to deviations in Service Performance caused by continuous or intermittent degradation of the KPI of one or more EPL of the TCS.

[91] These durations correspond to a Degraded Availability rate of 99.99% for each EPL, i.e.:

1) Any continuous degradation lasting less than 4 minutes and 22 seconds (4.3 minutes) is not penalized
2) Any intermitted degradation lasting less than 20 minutes is not penalized.
3) Any degradation above these durations will be penalized with Service Performance credits, as long as the episode lasts, or until the link is declared unavailable, at which point Service Availability credits apply.

SLA-6 Service degradation shall be penalized when exceeding the limits in Table A-5. This includes situations where the limits in Table A-6 are also exceeded (Severe Degradation), and the link is considered unavailable, or the link is down. In such situations, penalties for Service Performance apply, until the time the period exceeds 44 minutes, and Service Availability credits as in Table B-2 kick in.

SLA-7 Credits for EPL degradation shall be graded based on the value of T (refer to definitions of T for continuous and intermittent events in § A.6), as per the table below.

[92] When the duration of the degraded period (T) is longer than 72 hours, the service credits will be discontinued, and service payments under the corresponding CLINs of the SSS will be reduced to 50%.

Table B-1 Credits for Link Performance degradation (vs time duration bands)

Time Degraded (T) bands	Credit Factor	Time Credited (in minutes)	Minimum Time Credited in band	Maximum Time Credited in band
0 < T < 4.3 min	0	0	0	0
4.3 min < T < 10 min	1	T	4.3 min	10 min
10 min < T < 1 hr	1.5	1.6 x T – 6	10 min	90 min
1 hr < T < 24 hr	2	2.02 x T – 31.3	90 min	2 days
T > 24 hr	2	2 x T days	2 x T	2 x T

SLA-8 The SLA shall include a Traffic Contract containing all KPI related to Service performance, following the model provided in § B.4.

B.2.2 Service Availability Credits

SLA-9 Service Availability Credits apply to deviations in Service Availability caused by single outages or episodes of highly degraded EPL performance, continuous or intermittent, exceeding in duration the maximum downtime set by the link availability and node reachability target figures in Appendix A, § A.7, as follows:

1) Single episode leading to link outages, continuous or intermittent, exceeding the monthly downtime limit for Link Availability (99.9%), i.e. 43 minutes and 49 seconds.

2) Single episode leading to node outages, continuous or intermittent, exceeding the monthly downtime limit for Single Node Reachability (99.995%), i.e. 2 minutes and 11 seconds

SLA-10 Credits for Unavailable Links and Unreachable Nodes shall be graded based on the value of T (refer to definitions of T for continuous and intermittent events in § A.7), as per the tables below, for the amount of time any given link is declared to be unavailable (Table B-2), or any given node is declared to be unreachable (Table B-3), respectively.

[93] When the duration of the link unavailable period or the node unreachable period (T) is longer than 72 hours, both the service credits as well as the service payments under the corresponding CLINs of the SSS will be discontinued.

Table B-2 Credits for Link Availability deviations (vs time duration bands)

Time Unavailable (T) bands	Credit Factor	Time Credited (in minutes)	Minimum Time Credited in band	Maximum Time Credited in band
0 < T < 44 min	0		0	0
44 min < T < 1 hr	2	2 x T	88 min	120 min
1 hr < T < 2 hr	3	4 x T – 120	120 min	360 min
2 hr < T < 24 hr	4	4.09 x T – 130.9	360 min	4 days
T > 24 hr	4	4 x T	4 days	4 x T

Table B-3 Credits for Node Reachability deviations (vs time duration bands)

Time Unreachable (T) bands	Credit Factor	Time Credited (in minutes)	Minimum Time Credited in band	Maximum Time Credited in band
0 < T < 2 min	0		0	0
2 min < T < 10 min	4	4 x T	8 min	40 min
10 min < T < 1 hr	6	6.4 x T – 24	40 min	360 min
1 hr < T < 24 hr	8	8.08 x T – 125.2	360 min	8 days
T > 24 hr	8	8 x T	8 days	8 x T

SLA-11 Service credits for Node Reachability deviations shall be added to any Service Credits for Link Availability of the individual links affected (e.g. if two links are down for 60 minutes, leaving a site isolated, the penalty will be 120 minutes of EPL cost under Link Availability, plus 6 hours of EPL cost under Node Reachability).

B.3 Planned Maintenances

SLA-12 Contractor shall notify the Purchaser of planned maintenances done by Contractor or any of its subcontractors at least 20 non-working days in advance.

[94] The Purchaser will notify Contractor of planned maintenances conducted on its premises at least 5 non-working days in advance

[95] Planned maintenances and related outages are not considered to be SLA-impacting

[96] The Purchaser may decline execution of Contractor's planned maintenance due to operational impact

SLA-13 The planned maintenance notification shall contain the following information:

- Time, date of the intervention
- Service elements affected
- Circuit number of line/lines in question
- Duration of the intervention, with work window and predicted actual outage time.

SLA-14 Emergency Maintenance shall be undertaken at the earliest opportunity after informing the Purchaser or if reasonable efforts to contact the Purchaser have been made via the existing channels (phone and email). The time and date of Emergency maintenances cannot be modified or delayed. The use of the term EMERGENCY dictates that the work must occur in order to prevent MAJOR network connectivity issues.

SLA-15 Emergency Maintenances shall be excluded from Availability calculations. The Contractor shall include in the Service Delivery Performance Report (SDPR) also the total availability including the maintenance downtimes for information purposes only.

B.4 Sample Traffic Contract

[97] Below is an example Traffic Contract, to serve as the model for the Traffic Contract in the SLA (figures shall be updated accordingly).

Ethernet Service EPL-1 Traffic Contract - HSC					
dd/mm/yy	**EPL ID:**	**EPL Pair:**	**Direction: X->Y**	**UNI 1: Site X**	**UNI 2: Site Y**
Performance Metric List Direction X->Y					

Ethernet Service EPL-1 Traffic Contract - HSC					
dd/mm/yy	**EPL ID:**	**EPL Pair:**	**Direction: X->Y**	**UNI 1: Site X**	**UNI 2: Site Y**
Performance Metric List	**Metric**	**Objective Parameter**			**Note**
		In service	**Degraded**	**Outage**	
One way Frame Delay (FD)	FD Performance objective	15ms+P	>In service value + 20msec <50msec	>50msec	P= 1msec per 125Km route distance
	Percentile	99.90%			
Inter Frame Delay Variation (FDV)	FDV Performance objective	<5msec	>5msec <10msec	>10msec	
	Percentile	99.90%			
	Frame pair interval	1 sec	1 sec	1 sec	
One way Frame Loss Ratio (FLR)	FLR Performance objective	< 1x10-6	>1x10-6 <1x10-5	>1x10-5	
One way availability	Availability Performance	All parameters within tolerance per second interval	One or more parameter is out of tolerance per second interval	one or more parameters is out of tolerance per second interval	

Ethernet Service EPL-1 Traffic Contract - HSC					
dd/mm/yy	**EPL ID:**	**EPL Pair:**	**Direction: Y->X**	**UNI 1: Site Y**	**UNI 2: Site X**
Performance Metric List Direction Y->X					
Performance Metric List	**Metric**	**Objective Parameter**			**Note**
		In service	**Degraded**	**Outage**	
One way Frame Delay	FD Performance objective	15ms+P	>In service value + 20msec <50msec	>50msec	P= 1msec per 125Km route distance
	Percentile	99.90%			
Inter Frame Delay Variation	FDV Performance objective	<5msec	>5msec <10msec	>10msec	
	Percentile	99.90%			
	Frame pair selector interval	1 sec	1 sec	1 sec	
One way Frame loss Ratio	FLR Performance objective	< 1x10-6	>1x10-6 <1x10-5	>1x10-5	

Ethernet Service EPL-1 Traffic Contract - HSC					
dd/mm/yy	**EPL ID:**	**EPL Pair:**	**Direction: Y->X**	**UNI 1: Site Y**	**UNI 2: Site X**
Performance Metric List Direction Y->X					
One way availability	Availability Performance	All parameters within tolerance per second interval	One or more parameter is out of tolerance per second interval	one or more parameters is out of tolerance per second interval	

UNI specification		
Specification	**Parameter**	**Note**
Metro Service	EVC	
Metro Type	EPL-1 Port Type	Point-2 -Point
Directional	Uni- directional	Paired EPL's
Bandwidth		
Ingress Bandwidth	100 Gbps	
CIR	100 Gbps	
CBS	n/a	
EIR	n/a	
EBS	n/a	
Egress bandwidth	100 Gbps	
CIR	100 Gbps	
CBS	n/a	
EIR	n/a	
EBS	n/a	
Ingress /egress MTU	9026	
Color	Single	
Mode	full duplex	
MAC Layer	IEEE 802.3.2002	
Layer 2 Control Protocol processing		
802.3x Mac Control Frames	Pass through	
LACP	Pass through	
802.1X	Pass through	
GARP	Pass through	
STP	Pass through	
Multicast	Pass through	

Appendix C Security Requirements

[98] The security classification of this Contract is NATO UNCLASSIFIED.

SEC-1 In the performance of all works, on NATO's premises and/or theatres of operations under this Contract it shall be the Contractor's responsibility to ascertain and comply with all applicable NATO security regulations related to physical security, force protection and any other local applicable security rule.

SEC-2 Any such contractor and /or subcontractors' personnel employed under this Contract that will require access to locations, such as sites and headquarters, where classified material and information up to and including "NATO Secret" are handled shall be required to have NATO security clearance up to this level. All Contractor staff involved in Project Management, Service Implementation and Service Delivery shall be security cleared to the same level, at the time of EDC.

SEC-3 It shall be the Contractor's responsibility to obtain the necessary clearances and to have such clearances confirmed to the Purchaser by the relevant national security authority for the full period of the Contract.

SEC-4 Contractor personnel requiring access to NATO Secret information or to other similarly classified information shall possess valid security clearance of NATO Secret.

SEC-5 Failure to obtain or maintain the required level of security for Contractor personnel for the period of performance of this Contract shall not be grounds for any delay in the scheduled performance of this Contract and may be grounds for termination under the Clause 39 'Termination for Default' of the Contract General Provisions.

SEC-6 All NATO classified material entrusted to the Contractor shall be handled and safeguarded in accordance with applicable security regulations.

SEC-7 The Contractor shall note that there may be restrictions regarding the carriage and use of electronic device (e.g. Laptops, PDA, Phones, Memory Sticks) in NATO locations. The Contractor shall be responsible for satisfying and obtaining from the appropriate site authorities the necessary clearance to bring any such equipment into the facility. The Contractor shall provide documentation that he has obtained approval to use any equipment which is part of the management segment.

SEC-8 The Contractor shall comply with all security measures as are prescribed by the Purchaser and the national security authority or designated security agency of each of NATO countries in which the Contract is being performed. The Contractor shall be responsible for the safeguarding of classified information, documentation, material and equipment entrusted to him or generated by him in connection with the performance of the Contract.

SEC-9 In particular the Contractor shall undertake to:

1) appoint an official responsible for supervising and directing security measures in relation to the Contract and communicating details of such measures to the Purchaser on request;

2) maintain, preferably through the official responsible for security measures, a continuing relationship with the national security authority or designated security agency charged with ensuring that all NATO classified information involved in the Contract is properly safeguarded;

3) abstain from copying by any means, without the authorisation of NATO, the national security authority or designated security agency, any classified documents, plans, photographs or other classified material entrusted to him, or parts thereof;

4) furnish, on request, information to the national security authority or designated security agency pertaining to all persons who will be required to have access to NATO classified information;

5) maintain at the work site a current record of its employees at the site who have been cleared for access to NATO classified information. The record should show the date of issue, the date of expiration and the level of clearance;

6) deny access to NATO classified information to any person other than those persons authorised to have such access by the national security

7) limit the dissemination of NATO classified information to the minimum number of persons (“need to know basis”) as is continuous with the proper execution of the Contract

8) comply with any request from the national security authority or designated security agency that persons entrusted with NATO classified information sign a statement undertaking to safeguard that information and signifying their understanding both of their obligations under national legislation affecting the safeguarding of classified information, and of their comparable obligations under the laws of the other NATO nations in which they may have access to classified information;

9) report to the national security authority or designated security agency any breaches, suspected breaches of security, suspected sabotage, or other matters of security significance which would include any changes that may occur in the ownership, control or management of the facility or any changes that affect the security arrangements and security status of the facility and to make such other reports as may be required by the national security authority or designated security agency, e.g. reports on the holdings of NATO classified material;

10) apply to the Purchaser for approval before Sub-contracting any part of the work, if the Sub-Contract would involve that the Sub-contractor would have access to NATO classified information, and to place the Sub-contractor under appropriate security obligations no less stringent than those applied to his own Contract;

11) undertake not to utilise, other than for the specific purpose of the Contract, without the prior written permission of the Purchaser or his authorised representative, any NATO classified information furnished to him, including all reproductions thereof in connection with the Contract, and to return all NATO classified information referred to above as well as that developed in connection with the Contract, unless such information has been destroyed, or its retention has been duly authorised with the approval of the NATO. Such NATO classified information will be returned at such time as NATO or his authorised representative may direct;

12) classify any document produced with the highest classification of NATO classified information disclosed in that document.

Appendix D Testing Requirements

D.1 Introduction

[99] This section outlines the generic Testing Requirements applicable to the implementation and acceptance of any Contract deliverables related to testing.

TST-1 All testing shall be the responsibility of the Contractor who shall provide the personnel, documentation, equipment, test data and facilities required for installation, commissioning and execution of the test.

TST-2 The Contractor shall be entirely responsible for the coordination and performance of all tests, unless otherwise indicated in this SOW, and shall ensure that an adequate number of Contractor's engineers and technicians are present to ensure the timely completion of all tests.

D.2 Test Principles

TST-3 All deliverables supplied by the Contractor under this Contract shall be tested to meet the requirements of this Contract.

TST-4 The Contractor shall provide the necessary duly calibrated test equipment, tools and any other items required for the satisfactory completion of all tests, and the recording of their results. This shall include but not be limited to the following:

1) Traffic Generators;
2) Performance Measurement instruments;
3) Protocol Analysers;
4) Installation tools;
5) Test Cases and Test Procedures, including Test Acceptance Criteria;
6) Any services/resources required to achieve test configuration.

TST-5 The Contractor shall assign and provide a Test Director and Test Operators and the Purchaser and/or his Designated Representative will attend and witness the testing.

TST-6 The Purchaser shall have the right to demand repetition of tests, proof of the validity of the test equipment calibration, and performance of reasonable additional tests to clarify doubtful or marginal results.

TST-7 The Contractor shall make available to the Purchaser, all facilities, information and assistance necessary to permit a valid interpretation of the test results.

TST-8 The Test Environment shall be under the control of the Purchaser during the testing period. Prior to the commencement of the tests, the Test Environment shall be baselined and no changes to hardware, software, firmware and/or configuration shall be introduced by the Contractor unless explicitly authorised

in writing by the Purchaser. Failure to do so by the Contractor shall render the complete testing null and void.

D.3 Test Procedures

TST-9 Test Procedures shall be prepared as per ISO 29119 Test Specification.

TST-10 Each Test Procedure shall, as a minimum, include, but not be limited to the following topics:

1) Scope.
2) Approach.
3) Testing Environment with a block diagram of the test layout.
4) List of all required test equipment.
5) A detailed step-by-step procedure written so that the procedure can be clearly understood and followed by the Test Group.
6) Objectives and expected test results with permissible test limits (Test Acceptance Criteria).
7) Test data sheet(s).
8) Verification Cross Reference Matrix (VCRM).
9) Observations summary sheets.
10) Signature Sheets.

TST-11 Modification of inaccurate or inadequate Test Procedures and any subsequent work arising as a result shall be carried out at the Contractor's expense.

TST-12 Any changes learned from the application of the Test Procedure shall be incorporated into the relevant Test Procedure by the Contractor. If only certain pages are affected, then it shall be sufficient to up-date and re-issue those pages plus cover sheet with amendment instructions. Should major changes in contents or page re-numbering be needed, then the complete section shall be re-issued by the Contractor. All changes shall be made with the agreement and approval of the Purchaser.

D.4 Test Data Sheets

TST-13 The test data sheets shall contain as a minimum space for insertion of:

1) Test location and date.
2) Name and Organisation details for Test Director, Contractor and Purchaser Representative.
3) Service type, including equipment and serial number(s).
4) Test procedure reference number and issue number.
5) Type and serial numbers of test equipment employed.

6) Test results.

7) Observations.

8) Comments.

9) Signature of the official representatives of the Contractor and the Purchasers representative.

10) Exported electronic test reports from respective testing tools.

D.5 Test Failure Procedure

TST-14 If the tests to be performed do not terminate in accordance with the completion criteria relevant to the test being performed (i.e. failures) the subject test(s) will be withdrawn from the testing suit and a preliminary investigation into the cause of the failure shall be carried out and an observation report shall be provided by the Contractor.

TST-15 Testing may resume with the next test after the withdrawal of the failed tests, if the successful termination of the withdrawn tests is not a prerequisite to the following tests. This shall be subject to the approval of the Purchaser.

TST-16 The point at which testing of the withdrawn test(s) is to recommence will be proposed by the Contractor who shall provide the reasons for his proposal and details of remedial action taken in a written reply to the observation(s) raised. Either at that time, or subsequently, it will be subject to the endorsement by the Purchaser.

TST-17 The procedure shall permit other test series to be carried out should the Contractor propose that it is practical to continue testing, while a particular test has been withdrawn for investigation.

TST-18 In the event that a particular series of tests meet the criteria after more than one attempt at any test, the Purchaser may request the repeat of the test(s) relating to that specification paragraph.

TST-19 The results of all tests required to verify that the services provided under this Contract meet the specified requirements shall be recorded. Any failure to complete a test successfully shall be recorded as deficiency and shall be subject to the deficiency procedure as specified in § D.7. The Purchaser reserves the right to request specific tests at no additional cost to the Purchaser.

D.6 Test Reports

TST-20 The Contractor shall provide a draft of Test Reports for Purchaser review immediately after execution of the test. The draft Test Report may be submitted with hand-written entries in the Test Result Fields in the Test Data Sheets and in the Observation Sheets.

TST-21 The Contractor shall provide an immediate Test Report after completion of the tests and shall provide a detailed Test Report, which fully documents the

outcome of the test within 5 (five) working days of completion of the respective test procedures.

D.7 Test Deficiencies

D.7.1 Definition

[100] A deficiency is a formal record of any aspect that could jeopardise successful completion of the Contract.

D.7.2 Deficiency Classification

[101] Deficiency Classification is the classification which the Purchaser assigns to a Deficiency. The categories for classification are defined as:

1) Critical: Departure from the specification, which must be rectified prior to the completion of the corresponding testing activity, in order to declare acceptance;
2) Deferment: A departure from the specification, which may be rectified before or after the corresponding test activity can be declared as completed by the Purchaser, and acceptance can be declared.
3) Omission: A departure from the specification where it is agreed that no remedial action is necessary.

D.7.3 Deficiency Procedure

TST-22 Deficiencies shall be recorded in accordance with the following procedure. The Contractor shall submit all deficiencies to the Purchaser for endorsement of the clearance action taken.

TST-23 A Deficiency shall be recorded when identifying any aspect that could jeopardise successful completion of the Contract. These aspects shall include but not be limited to:

1) A design shortage or deficiency revealed in any design, implementation or test specification.
2) Any shortage or deficiency revealed by inspection or application of testing procedures.
3) Any comment raised by the Contractor concerning any aspect of the Contract.
4) Any comment raised by the Purchaser or his designated representative concerning any aspect of the Contract.

TST-24 Deficiency sheets shall be maintained by the Contractor and shall record the following information:

1) The serial number of the deficiency sheet.

2) The deficiency.

3) Sufficient information to define the context of the deficiency in terms of the articles to which it applies, the state of articles (including any appropriate environmental details, as applicable), and the date of the deficiency.

4) The authorised personnel endorsing the deficiency.

5) Any clearance action taken, such as repair and testing, a specification modification, receipt of a written reply from the Contractor etc., as applicable.

6) The authorised personnel endorsing the clearance and the date of clearance.

Appendix E Documentation Requirements

E.1 Introduction

[102] This section outlines the generic Documentation Requirements applicable to the development of any documentation deliverables under this Contract.

DOC-1 All documentation deliverables to be provided within the scope of this Contract shall be prepared and delivered in accordance with the following requirements:

DOC-2 The documentation shall contain the following information:

1) Title.
2) Document Number.
3) Amendment Sheet.
4) Issue Number and Date of Issue.
5) Table of Contents - this shall be broken down to list sections / chapters, major paragraphs, sub-paragraphs together with title and page.
6) List and titles of drawings, illustrations, tables and abbreviations.
7) Main text.
8) Glossary and symbols legend.

DOC-3 Any project management documentation deliverables shall include the associated electronic files, MSP, Word, Excel, etc., both native format and exported to Acrobat PDF format.

DOC-4 The documentation produced under this Contract shall be limited to NATO UNCLASSIFIED content and shall be delivered to the Purchaser's Project Office by e-mail, or shall be directly uploaded to a Purchaser-run portal, acting as an electronic information repository.

DOC-5 Any information which will be above NATO UNCLASSIFIED shall be delivered to the Purchaser's Project Office via the appropriate way defined by the Purchaser.

E.2 Format criteria

DOC-6 All documentation provided to the Purchaser shall be written in English with spelling and usage based on the Concise Oxford English Dictionary, 11th edition.

DOC-7 The convention to be used for numbers appearing in textual documents is for a comma to be the thousands separator and a period to be the decimal separator (e.g., 1,365,276.24).

DOC-8 The convention to be used for dates appearing in free text (e.g., quoting dates of meetings) is day-month-year (25 May 2018).

DOC-9 Documentation shall neither be marked with corporate logos nor contain warnings limiting the rights to use or reproduction.

DOC-10 Every page shall include a header and footer indicating the highest classification of content on that page using one of the following labels: NATO RESTRICTED (sensitive information identifying a named location or security assessment), or NATO UNCLASSIFIED.

DOC-11 The document's cover page's header and footer shall reflect the highest classification of content in the document.

DOC-12 All project documentation shall contain a version number appropriate to the major / minor concept (e.g. 1.0, 1.1, 1.2, 2.0, 3.0) where the first number represents a major release or significant change to the content while the second number represents a smaller change (e.g. spelling corrections, formatting or minor adjustments). This version number shall appear on each page of the document.

DOC-13 The document file name shall not contain any variable information, like maturity (e.g. DRAFT), version number, etc.

DOC-14 The Contractor shall submit all project management documentation (e.g., plans, schedules, reports, etc.) as electronic copies in MS Office format (version compatible with fielded Purchaser products) to the Purchaser for review and comment.

DOC-15 The documentation shall be provided in electronic editable version as mentioned in Soft Copy section below.

E.3 Publication criteria

DOC-16 The individual pages in the documentation shall be DIN A-4 size.

DOC-17 The pages of the documentation shall be consecutively numbered.

DOC-18 The scale of all vector-based drawings shall be quoted, where applicable.

DOC-19 In all cases where documentation has been developed for this Contract, documentation shall be uploaded to a portal determined by the Purchaser. In addition to the textual elements of the documentation, wherever diagrams, drawings, or other such non-textual documentation such as project scheduling information is included, the Contractor shall also deliver these non-textual elements in the native format compatible with, the Purchaser's software. The principal software packages currently in use by the Purchaser are:

1) MS Office.
2) MS Project.
3) MS Visio.
4) Adobe PDF.

DOC-20 "Soft copies" of the documentation composed and compiled by the Contractor shall follow the NCI Agency naming convention AI 06.00.01

DOC-21 The principal software packages currently in use by the Purchaser are the latest version of:

1) Microsoft Office Professional;
2) Microsoft Project;
3) Microsoft Visio Enterprise; and
4) Adobe Acrobat.

DOC-22 All the electronic, optical or soft copies shall display the label of highest level of the classification of its contents.

DOC-23 The Header and/or Title of the directory structure of the documentation provided in soft copies should bear a reminder of the highest classification level of its contents.

DOC-24 For all deliverable documents, versions of the document shall be delivered to the Purchaser in their native electronic file format as prepared by the Contractor. Where the native format is not one of the above supported software packages, a conversion of the document shall be provided that is readable by one of the above packages, with full ability to edit and to copy text and diagrams from the document. Passwords and other document protection mechanisms shall not be used.

E.4 Contract Document Requirements List (CDRL)

DOC-25 The Contractor shall maintain and provide to the Purchaser a Contract Document Requirements List (CDRL) as part of the PMP. The CDRL shall contain the status of all documentation to be provided under the Contract: Title, reference, quantity and status (i.e. draft, approved, revision level. etc.). A final version of the CDRL shall be delivered to the Purchaser prior to Final Acceptance.

DOC-26 The initial CDRL provided by the Purchaser is presented in Appendix F.

DOC-27 The Contractor shall also maintain version control of all documentation submitted throughout the Contract life cycle.

DOC-28 The Contractor shall deliver the documents in the CDRL as per the Schedule of Supplies and Services, and shall remain responsible for producing any required changes to the documentation during the warranty period. These shall always be in the form of change pages; pen and ink corrections shall not be acceptable.

DOC-29 The Contractor shall submit documentation, intended for review and approval by the Purchaser, with each modification identified through the change tracking feature or otherwise marked.

DOC-30 Documentation shall be provided in English and in electronic format, both in PDF (OCR) format and in an editable Microsoft Office/Visio format.

DOC-31 Each page shall contain the appropriate security classification of the documentation stamped or typewritten in the centre at the top and bottom of each page.

E.5 Documentation Review and Acceptance

[103] Documents delivered in two stages (i.e. final draft, final) will be specified to be so in this SOW. The process described below applies to each of the stages, and to any document listed in the CDRL in Appendix F.

[104] Upon receiving the document, the Purchaser will have up to two (2) weeks to review (one (1) week being the target).

[105] The outcome of the review will be uploaded to the Customer portal, as a commented version of the original document

[106] If required, the Purchaser or the Contractor will call an Ad-hoc meeting to discuss the comments and to agree on the modifications to be performed

DOC-32 The Contractor shall introduce the agreed modifications, and deliver the next version of the document within the following two (2) weeks (one (1) week being the target).

[107] Unless otherwise specified in the Schedule of Supplies and Services (SSS), the Purchaser will formally accept and approve the document within one week, at which point the document will be subject of configuration control through the Service Change Management procedures described in § 3.2.

[108] The Purchaser may exceptionally agree to use the initial version of the document, ahead of the modifications and final approval, in support of, and in order to avoid delays on, any activities relying on the document.

Appendix F Contract Document Requirements List

[109] The following table contains the Contract Document Requirements List (CDRL) corresponding to the requirements in this Statement of Work. Delivery dates are provided in the Schedule of Supplies and Services (SSS).

Table F-1 CRDL for Service Implementation stage (from EDC to PSA)

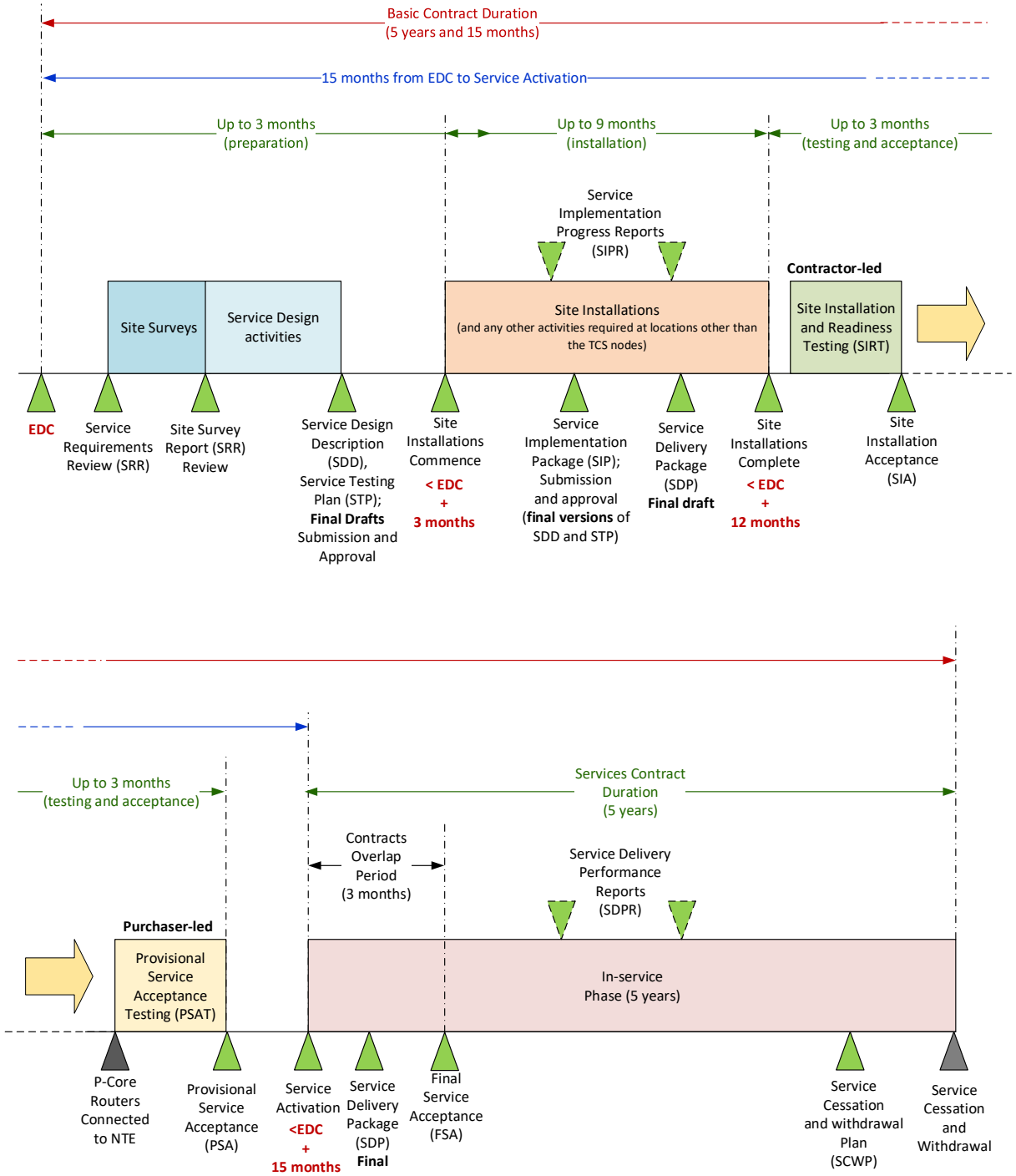
Item	Document Name
1	Service Requirements Review (SRR) Report
2	Site Survey Reports (SSR)
3	Service Design Description (SDD) - Final Draft
4	Service Testing Plan (STP) - Final Draft
5	Service Implementation Package (SIP) - Final
6	SIRT Report
7	PSAT Report
8	Service Implementation Progress Reports (SIPR)
9	Service Design Description (SDD) - Final ~~Draft~~
10	Service Testing Plan (STP) - Final ~~Draft~~
11	Service Delivery Package (SDP) - Final Draft
12	Service Delivery Package (SDP) - Final
13	Service Delivery Package (SDP) - Yearly Updates
14	Service Level Agreement (SLA) - Final Draft
15	Service Level Agreement (SLA) – Final
16	Project Management Plan (PMP) – Initial
17	Project Management Plan (PMP) – Final

Table F-2 CRDL for Service Delivery stage (from PSA to SC)

Item	Document Name
1	Service Delivery Performance Reports (SDPR)
2	Service Cessation and Withdrawal Plan (SCWP)

Appendix G Contract Execution Timeline

[110] The following figure outlines the sequence of activities and deliverables associated to the Contract. The actual dates referred to EDC are provided in the Schedule of Supplies and Services.



Appendix H List of Acronyms

ACT	Allied Command Transformation
ACO	Allied Command Operations
BE	Best effort
BER	Bit error rate
Bref	Reference interface B (part of the NCRA)
BGP	Border Gateway Protocol
CBS	Committed Burst Size
CDLR	Contract Document Requirements List
CFM	Connectivity Fault Management
CIR	Committed Information Rate
CNAT	Core Nodes Acceptance Test
CoS	Class of service
CPU	Central Processing Unit
CS	Class Selector
DiffServ	Differentiated services
DWDM	Dense Wavelength Division Multiplexing
DNS	Domain name system
DOS	Denial of Service
DSCP	Differentiated Services Code Point
EBS	Excessive Burst Rate
EF	Expedited forwarding
EIR	Excessive Information Rate
ELMI	Interim Local Management Interface
EVC	Ethernet Virtual Circuit
EPL	Ethernet Private Line
EXP	Experimental
FCA	Functional Configuration Audit
FD	Frame Delay
FDV	Frame Delay Variation
FL	Frame Loss
FSA	Final Service Acceptance
FSAT	Final Site Acceptance Test
GARP	Generic Attribute Registration Protocol
GRE	Generic routing encapsulation
IETF	Internet Engineering Task Force
IntServ	Integrated Services
IP	Internet Protocol
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
IPSec	IP Security
ITU	International Telecom Union
KPI	Key Performance Indicator

L2CP	Layer 2 Control Protocol
LAN	Local Area Network
LAMP	Link aggregation Marker Protocol
LLDP	Link Level Discovery Protocol
LLQ	Low latency queuing
MEF	Metro Ethernet Forum
MPLS	Multi Protocol Label Switching
MRP	Multiple Registration Protocol
MTBF	Mean time between failures
MTTR	Mean time to repair
MTU	Maximum Transfer Unit
MSTP	Multiple Spanning Tree Protocol
NAT	Network Address translation
NATO	North Atlantic Treaty Organisation
NCIA	NATO CIS Agency
NC3B	NATO Consultation, Command and Control Board
NC3O	NATO Command and Control Organisation
NCIA	**NATO Communication and Information Agency**
NCRA	NATO Networking and Information Infrastructure Communications Reference Architecture
NDN	National defence network
NE	Network Element
NED	NATO Edge Device
NGCS	NATO General-purpose Communication System
NII	Networking and Information Infrastructure
NRF	NATO Response Force
NQAR	Network Quality Aware Routing
OAM	Operation and maintenance
OTN	Optical Transport Network
OSPF	Open Shortest Path First
P2P	Point to Point
PCA	Physical Configuration Audit
PHB	Per hob behaviour
PMP	Project implementation plan
PNG	Packet network gateway
PoCT	Proof of Concept Test
PrSA	Provisional Site Acceptance
PRINCE2	s in Controlled Environments
PSTN	Public Switched Telephone Network
PTC	Packet Transport Component
QENI	QoS-Enabled Network Infrastructure
QESI	QOS-Enabled Site Infrastructure
QoS	Quality of service
RFC	Requests for Comments
RSTP	Rapid Spanning Tree Protocol
RTCP	Real Time Control Protocol

RTSP	Real Time Stream Protocol
SA	Service availability
SAT	Site Acceptance Test
SBC	Service-Based Classes
SDR	Service degradation factor
SFP	Small Form-factor Pluggable
SIOP	Service interoperability point
SIP	Session initiation protocol
SLA	Service level agreement
SMC	Security management centre
SNMP	Simple network management protocol
STI	Short Time Interval
STP	Spanning Tree Protocol
SOW	Statement of Work
SSH	secure shell
SSS	Schedule of Supplies and Services
SyncE	Synchronous Ethernet
TDM	Time Division Multiplexing
TCP	Transmission control protocol
UNI	User Network Interface
VLAN	Virtual local area network
VoIP	Voice over Internet Protocol
VPN	Virtual private network
VTC	Video Teleconference
WAN	Wide Area Network
XFP	Gigabit Small Form-factor Pluggable

Certificate of Security Obligation

CONTRACT NUMBER CO-14797-TCS

DURATION OF CONTRACT: _____

This is to certify that I:

FULL NAME: _____

MILITARY RANK AND NUMBER (where applicable): _____

DATE/PLACE OF BIRTH: _____

NATIONALITY: _____

WHERE EMPLOYED: _____

PURPOSE AND DURATION OF VISIT: _____

PASSPORT/IDENTITY CARD NUMBER: _____

ISSUED AT: _____ DATED: _____

Have been fully briefed on NATO security procedures relating to the handling, storage and dissemination of NATO RESTRICTED information. In addition, I fully acknowledge my personal security responsibilities and obligations and the consequences that the law or administrative or executive order of my nation provides when classified information passes into unauthorized hands, whether by intent or through personal negligence.

Considering the above, we hereby request an Electronic Soft Copy (on CD ROM) of Book II Part IV SOW Appendix I. We hereby confirm that our company shall safeguard such documents in accordance with NATO Security Regulations. Book II Part IV SOW Appendix I shall be posted to the following address: _____ .

SIGNED: _____ DATE: _____

Date	Signature of Authorised Representative
	Printed Name
	Title
	Company